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ABSTRACT

Conducted from October 1970 through August 1971, this assessment of reading was concerned with four age levels--9, 13, 17, and 26-35. A total of 98,016 people responded to a wide variety of reading exercises which were administered and scored by trained professionals. The results were then examined according to various group characteristics: sex, color, parental education, region of the country, and size and type of community (STOC). Reading objectives were formulated and reviewed by a cross section of scholars, educators, students, and lay citizens. The first five objectives represented the individual's ability to comprehend, analyze, use, reason logically, and make judgments concerning what he had read. The sixth reading objective was concerned with attitudes toward and interests in reading. Some of the results indicated that there is a correlation between membership in certain groups and a low or high level of success on reading exercises, that school-age males read consistently below females, that blacks were consistently below the national population, that people from the Southeastern States were consistently below their counterparts in other States, and that students from inner-city areas read less well than those from any other STOC group. (WR)

# RECIPES, WRAPPERS, REASONING AND RATE

A Digest of the First Reading Assessment

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NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

A Project of the Education Commission of the States

REPORT 02-R-30

# RECIPES, WRAPPERS, REASONING AND RATE:

## A Digest of the First Reading Assessment

April 1974

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

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# INTRODUCTION

Our world is a highly visual one where films have replaced books for many people and where the television newscast has supplanted the daily newspaper as the nation's major source for news. Nevertheless, reading remains a basic skill required for the adequate performance of almost any job in our society, and the advancement of literacy remains a fundamental goal of American education.

In spite of the importance of television and film in our society, visual media have not suppressed the growing number of new books published each year. The entire news content of the CBS-TV evening news program does not equal the total number of words on the front page alone of most major daily newspapers. Forms for insurance, taxes, applications and credit are as complex as ever.

Moreover, with the increase in business advertising and political propaganda, an ability to read critically is a vital skill for every American citizen.

With those things in mind, the National Assessment has been concerned not only with assessing vocabulary skills and people's ability to extract significant facts from passages but also with people's ability to interpret charts, read forms and signs, follow directions, use reference materials, identify main ideas and modes of organization, draw inferences and read critically. The assessment is concerned therefore with the reading of printed materials--more specifically with those reading skills usually taught in schools and with the percentages of Americans who have attained those skills. Reports from this project describe how well various segments of the American population use those reading skills in a test situation.

## The Reading Assessment

This assessment of Reading was conducted from October 1970 through August 1971 at four age levels--9, 13, 17 and 26-35. About three fourths of the 9-year-olds were then enrolled in the fourth grade, with most of the remainder in the third grade. About three fourths of the 13-year-olds were enrolled in the eighth grade with most of the remainder in the seventh grade.

The 17-year-olds who participated in the assessment fall into two classifications: (1) the "in-school" 17-year-olds and (2) the "out-of-school" 17-year-olds who were not enrolled in public or private schools during March 1970 because they either dropped out or completed high school early. The latter were included to provide a more balanced representation of all 17-year-olds. About three fourths of the "in-school" 17-year-olds were enrolled in the eleventh grade; of the remainder, about half were enrolled in the tenth grade and about half in the twelfth. Some of the "out-of-school" respondents were 18-year-olds who were included to obtain a larger representation, assuming that since they too were out of school, one year's difference in age would make little difference in the way they responded.

The young adults (aged 26-35) who participated in the assessment were born between April 1, 1935, and March 31, 1945. They and most of the out-of-school 17-year-olds were tested in their homes rather than in regular school situations.

A total of 98,016 people, both in and outside of schools, responded to a wide variety of Reading exercises. There were 29,820 9-year-olds, 37,588 13-year-olds, 28,673 17-year-olds and 1,935 young adults. National Assessment's probability sampling procedures insure that those 98,016 people are statistically representative of the total population of the United States at each of the four age levels.

The Reading exercises were administered and scored by trained professionals. The results were then examined according to various group characteristics.

1. Sex: Results for males and females are presented.

2. Color: Currently, NAEP presents results for Blacks and Whites.

3. Parental education: The four parental education categories are defined by the highest level of education attained by either of a person's parents. The no high school category is comprised of all people who indicated that neither parent went to high school. The some high school category consists of all those who indicated that the parent with the most education attended high school but did not graduate. In the graduated from high school category are all those who indicated that at least one parent graduated from high school, and in the post high school group are all who indicated that at least one parent received some post high school education. (This may mean college, but it also includes adult education courses of any kind, vocational training, etc.)

4. Region of the country: National Assessment's regional divisions are the Southeast, West, Central and Northeast, the same regional divisions used by the Office of Business Economics, Department of Commerce.

5. Size and type of community (STOC): These categories apply only to respondents enrolled in school at the time of the assessment. The seven groups were defined as follows:

   a. Extreme inner city. People in this category attend schools in cities with populations greater than 150,000; the schools serve areas in which a high proportion of the residents are on welfare or are not regularly employed.

   b. Extreme rural. People in this category attend schools in a community having a population less than

3,500. Most residents in the area the school serves are farmers or farm workers.

c. Extreme affluent suburb. Individuals in this group attend schools within the city limits or residential area served by a city with a population greater than 150,000; the area served by the school consists primarily of professional or managerial personnel.

d. Rest of big city. These are students attending schools in a big city (population greater than 200,000) who are not included in either the extreme inner city or extreme affluent suburb groups.

e. Medium size city. Individuals in this category attend schools in cities with populations between 25,000 and 200,000.

f. Small city. People in this group attend schools in a community of less than 25,000 inhabitants.

g. Suburban fringe. People in this group attend schools in the metropolitan area served by a city with more than 200,000 inhabitants; the school and the area it serves are outside of the city limits.

The results for 9, 13 and 17-year-olds who are in school are presented in terms of those STOC categories. However, we do not have the information necessary to present the results for adults and out-of-school 17-year-olds in the same way. Consequently, the following less specific breakdown of results appears for all 17-year-olds (in and out-of-school) and young adults:

1. Big city. In this group are all adults and 17-year-olds who live in or attend schools in cities with more than 200,000 inhabitants.

2. Urban fringe. This category consists of adults and 17-year-olds who live in or attend schools in the metropolitan area served by a big city, but outside of the city limits.

3. Medium size city. This category is comprised of adults and out-of-school 17-year-olds who live in or attend schools in communities with populations between 25,000 and 200,000.

4. Small places. Adults and 17-year-olds who live in or attend school in communities with populations under 25,000 fall into this group.[1]

## The Reading Objectives

The Reading objectives were formulated and reviewed by a cross section of scholars, educators, students and lay citizens.

The first five Reading objectives represent the individual's ability to comprehend, analyze, use, reason logically from and make judgments concerning what he has read. These objectives form a hierarchy of reading behaviors; that is, one must be able to comprehend a passage before he can analyze it and analyze a passage before he can use it, reason from it or make judgments concerning it. This hierarchical arrangement of behaviors represents a logical progression of what a student should be able to do as a result of his reading experiences and instruction. The sixth Reading objective is concerned with attitudes toward and interests in reading. The six Reading objectives and major subobjectives are:

I. Comprehend what is read.
   - A. Read individual words.
   - B. Read phrases, clauses and sentences.
   - C. Read paragraphs, passages and longer works.

This is the most elementary or most concrete objective, requiring only the recognition of individual words in or out of context and the ability to extract facts from passages.

II. Analyze what is read.
   - A. Be able to trace sequences.
   - B. Perceive the structure and organization of the work.
   - C. See the techniques by which the author has created his effects.

This objective is a degree more abstract than the first objective. It requires the ability to detect relationships among facts,

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[1]For a detailed description of groups, and of how the assessment was administered, scored and analyzed, please refer to *Report 02-GIY, General Information Yearbook: Reading & Literature* (Washington, DC: Government Printing Office, 1972) available from the Superintendent of Documents.

including organization of facts and recognizing sequences of facts.

III. Use what is read.
  A. Remember significant parts of what is read.
  B. Follow written directions.
  C. Obtain information efficiently.

This skills objective requires the individual to recall facts from a passage he has read without referring to the passage, to perform various tasks on the basis of what he has read and to demonstrate his ability to obtain information from a wide variety of non-textual materials.

IV. Reason logically from what is read.
  A. Draw appropriate inferences from the material that is read and "read between the lines" where necessary.
  B. Arrive at a general principle after examining a series of details.
  C. Reason from a general principle to specific instances.

This objective requires a significantly greater use of abstracting ability than any previous objective. On the basis of reading about a sequence of events, the individual must determine what event would logically follow; or he must determine the main point or topic of a passage from the facts that are presented; or, if given a general concept, he must recognize how specific facts relate to the concept.

V. Make judgments concerning what is read.
  A. Relate what is read to things other than the specific material being read.
  B. Find and use appropriate criteria in making judgments about what is read.
  C. Make judgments about a work on the basis of what is found in the work itself.

In some sense, this is a practical or an applied version of Objective IV. Like Objective IV, it requires a high degree of abstracting ability, but it also requires the use of facts and/or concepts external to the passage. Objective V may require relating facts and/or concepts in a passage to some aspect of the world at large, or it may require relating some fact and/or concept acquired in the individual's past experience to the passage.

VI. Have attitudes about and an interest in reading.

This objective was not assessed in 1970-71.[2]

## The Reading Exercises

Once the Reading objectives were formulated, they became the framework within which the Reading exercises[3] were developed. Each exercise, therefore, purports to measure readers' skills related to one of the above objectives.

The majority of the Reading exercises were in a multiple-choice format that included an "I don't know" response. The respondent merely filled in an oval beside the response he believed to be correct. Some exercises were open ended, requiring the respondent to supply his own response.

## The Reading Themes

After the Reading exercises were developed, another framework for classification was constructed. The themes were developed by members of the National Assessment staff and reading specialists to cluster the Reading exercises into reporting categories that are meaningful to lay persons, scholars and educators concerned with the reading skills of various groups of young Americans.

A theme defines a set of existing and potential exercises that relate to each other in content or in some central idea that is meaningful to the subject area of concern. The Reading themes represent both a variety of reading materials and a variety of behaviors these materials require.

The themes are numbered--the lower numbers designating the more basic reading skills and the higher numbers designating

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[2]For a complete statement of the Reading objectives and a detailed discussion of their development, refer to the National Assessment publication, *Reading Objectives*, 1970-71 National Assessment of Reading (Denver, CO: National Assessment of Educational Progress, 1970).

[3]The term exercise has been used intentionally to distinguish the assessment from a test. Most standardized tests are normative, reporting results for groups of items. Individuals are then compared to the test norms. National Assessment, however, describes the performance of broad population groups on specific exercises within well defined educational objectives.

higher-order skills. Successful performance on exercises in the higher-numbered themes requires some of the abilities measured in the lower-numbered themes in addition to the higher-ordered skill. This increasing complexity is apparent in the following description of the Reading themes.

Theme 1: Understanding Words and Word Relationships

Since most reading materials contain words, at a minimum the reader must be able to understand the meanings of the words and how the words relate to form a meaningful whole. Exercises in this theme are of three types. One type requires the individual to give the meaning of a word occurring in isolation, another type requires the individual to derive the meaning of a word from its contextual use and the third type requires the individual to recognize when sets of words relate to form a meaningful whole.

A person must be able to do more than merely recognize words and word relationships; he must also be able to glean important facts from many types of materials. Themes 2-5 are all concerned with a person's ability to identify and extract significant factual information, but they differ in the method used to present the factual information.

Theme 2: Graphic Materials
- Subtheme A: Interpret drawings and pictures.
- Subtheme B: Read signs and labels.
- Subtheme C: Read charts, maps and graphs.
- Subtheme D: Read forms (such as applications, report cards, etc.).

Theme 2 is characterized by materials using a variety of formats other than line-by-line narrative to convey their messages. Graphic materials can be used alone, or in lieu of or in conjunction with line-by-line narrative to clarify or augment its meaning.

Theme 3: Written Directions
- Subtheme A: Understand written directions.
- Subtheme B: Carry out written directions.

Directions are information-imparting materials that tell how to do something. The subtheme *understanding written directions* requires only that an individual indicate that he could perform what the directions state, given the opportunity. The subtheme *carry out written directions* requires the individual to perform what the directions state.

Theme 4: Reference Materials
Subtheme A: Know appropriate reference sources.
Subtheme B: Use reference materials effectively.

In order to utilize information from reference materials, an individual must first know which type of reference to consult for a specific kind of information. This is the requirement of the exercises in the subtheme *know appropriate reference sources*. Once the appropriate source is located, an individual must be able to extract the desired information, that is, *use reference materials effectively*. (In all but one exercise in the latter subtheme, facsimilies of reference materials were used.)

Theme 5: Gleaning Significant Facts from Passages

This theme requires the most concrete level of behavior toward line-by-line narrative. Some exercises require the individual to extract certain facts while the passage is still available to him for reference. Other exercises require the individual to recall certain facts when the passage is no longer available. Still other exercises require the individual to discern how certain facts relate to each other. While all three types of exercises are concerned with facts, they require increasingly higher levels of cognitive processes.

Only if a person can successfully glean important facts from the types of materials in Themes 2-5 is he able to function adequately as a reader. A good reader, however, is able to engage in higher levels of cognitive processes involving reading materials. These higher-level behaviors are the topics of Themes 6-8. Most of the exercises involve line-by-line narrative, but some use materials like those in Themes 2-4.

Theme 6: Main Ideas and Organization

Identifying the main idea of a passage or discovering its organization requires a higher level of comprehension than merely grasping the important facts. Some exercises require the individual to identify the main idea being expressed in a passage either by suggesting an appropriate title or by identifying the point the author is trying to make. Other exercises require the individual to identify the mode in which the author organizes the facts.

Theme 7: Drawing Inferences

Drawing inferences requires that an individual derive a conclusion not explicitly stated in the passage but which logically

follows from the organization of the passage and the information it contains. For some exercises, the individual needs only to rely on the information in the passage in order to derive a conclusion; for others, however, he must also have some additional information based upon his prior experience.

Theme 8: Critical Reading

Critical reading requires from an individual the highest levels of cognitive behavior in the Reading assessment: analysis and reasoning. In addition, the exercises require respondents to form an opinion about the passage. Critical reading represents a deep interaction between author and reader, possibly leading to an understanding that is greater than the contribution of either.[4]

Reading exercises are numbered with six digits (one letter and five numbers). The letter is either "R" for a released exercise or "U" for an unreleased exercise (R10101 is a released exercise; U10201 is an unreleased exercise). Though the results for unreleased exercises are often published, the exercises themselves are kept secret so they can be used again in future assessments. Usually, half the exercises used in an assessment are released, half unreleased. The first number indicates the theme in which the exercise occurs (R51701 is in Theme 5). The second and third numbers indicate the exercise within each theme (R10101 is the first exercise in Theme 1; R51701 is the seventeenth exercise in Theme 5). When an exercise has more than one part, the fourth and fifth numbers refer to the specific part of the exercise (R75503 refers to part 3 of the fifty-fifth exercise in Theme 7). Exercises with only one part have numbers ending with the digits 01.

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[4]A detailed report on each of those eight themes, plus one on reading rate and comprehension, is available from the United States Government Printing Office. See Appendix C in this report for a complete listing of titles and report numbers.

# CHAPTER 1

## SUMMARY: STEREOTYPES AND SUPPOSITIONS

Broad generalizations based on educational research are often suspect, since differences between groups are seldom large enough to produce convincing conclusions. This was not the case with the results of the 1970-71 Reading assessment. Those results reveal patterns and contrasts between groups that are very convincing and from which broad generalizations about reading performance can be drawn. Unfortunately--or fortunately--the data clearly support stereotypes and suppositions many people have had about good and poor readers.

The most obvious contrast in the Reading assessment is in the performance of Blacks and Whites. The difference is extremely large, with Blacks being far below the national level on every theme, without exception. For example, in Exercise R20601, which asks students to distinguish between the prepositions by, on, over and near, only 71% of Black 9-year-olds made the correct response compared to 91% of White 9-year-olds. Similarly, on Exercise R20901 which asks respondents to decide which of two dog food labels indicates the higher amount of protein, the percentage for White 9-year-olds was even slightly higher than the percentage for Black students who were four years older. The overall level of performance for Blacks, in fact, was lower than that for any other group in this study. That held true at all age levels, with Black adults having the lowest relative overall performance. Among the school-age population, however, the gap between Blacks and Whites does not appear to increase with age. That is, in relation to the nation, Blacks did not seem to read less well at age 17 than they did at 13 or 9 years of age. Therefore, whatever the factors are that contribute to such wide differences, they seem to have occurred before the children reached 9 years of age. (See Chapter 3 for a more detailed examination of difference by race.)

Obvious differences in reading performance also exist within all other categories examined in the Reading assessment. Parental education makes a significant difference in reading performance. School-age populations and young adults whose parents have not completed high school read far less well than did people of the same age level whose parents have more education. Only 51% of the 13-year-olds whose parents had no high school education, for example, were able to select the most desirable statement of the

main idea of a paragraph (Exercise R61201) compared to 85% of the 13-year-olds whose parents had post high school education. Thirteen and 17-year-olds whose parents have had no high school education fare less well in reading skills than either 9-year-olds or adults in that group. In fact, adults whose parents had the least amount of education were closer to the national level than were any of the three school-age groups. When at least one parent in a family has graduated from high school, the chances increase that the school-age children (9, 13 and 17-year-olds) will be at least average readers compared to the nation as a whole. Coming from a home with little formal education seems to be less of a handicap to reading performance for young adults aged 26-35 than for 9, 13 or 17-year-olds. The highest overall reading performance of any parental education category was registered by respondents whose parents had some education beyond high school. This was true at each of the four age levels.

There is also an obvious relationship between reading proficiency on the National Assessment Reading exercises and the size and type of community (STOC) which one's school serves. School-age young people from the extreme inner city group performed far below those in other STOC groups, with the greatest difficulty being experienced by the 9-year-olds in that STOC category. In contrast, 9, 13 and 17-year-olds from the extreme affluent suburb group were superior to all other STOC groups in their overall reading performance.

Between those two extreme groups there was a wide range of performance for other STOC groups in relation to the nation as a whole. That progression, from lowest performance to highest performance, is as follows:

| | Group |
|---|---|
| Lowest | Extreme inner city |
| | Extreme rural |
| | Small city |
| | Medium city |
| | Rest of big city |
| | Suburban fringe |
| Highest | Extreme affluent suburb |

Exercise R41306 provides a typical example of that progression. The following results indicate the percentage of each group of 17-year-olds that was able to correctly answer five questions about a TV schedule:

| | Group | % Correct |
|---|---|---|
| Lowest | Extreme inner city | 37.0 |
| | Extreme rural | 46.0 |
| | Small city | 50.8 |
| | Medium city | 51.2 |
| | Rest of big city | 61.1 |
| | Suburban fringe | 62.1 |
| Highest | Extreme affluent suburb | 66.5 |

That sequence was essentially the same for all three school-age groups. Because these STOC categories are partially related to family income, reading success is apparently associated with parents' financial well-being.

For young adults the pattern of reading success in relation to the nation as a whole is somewhat commensurate with the size of community, as follows: adults from big cities read somewhat below the national average, adults from small places and medium cities read at about the national average and adults from urban fringes read somewhat above the national average.

In addition, the overall reading performance of school-age boys was clearly below that of girls, with few exceptions. For example, 91% of the boys and 96% of the girls at age 17 drew the correct inference from a passage on ecology (Exercise R73802). On the same exercise at age 13, 77% of the girls and only 68% of the boys chose the correct response. Exceptions to that pattern are as follows. Nine-year-old boys read about as well as girls in the skills areas of vocabulary and graphic materials. Males in general also had better recall of specific details than girls did on reading rate exercises, though girls generally read faster. Among the young adult population, men and women showed about the same reading ability. Unusual results for males and females are discussed in greater detail in Chapter 4.

There is even a relationship between reading achievement and the region of the country in which a person resides. Specifically, respondents at all four age levels in the Southeast performed significantly below their counterparts from the other three regions of the country in <u>every</u> reading skill area assessed in this study--from following simple directions to reading critically. For example, Exercise R31401 requires respondents to draw a complex geometric design from a set of written directions, as follows:

> Draw a horizontal line near the bottom of the page. Draw two circles approximately one inch in size above the line which just touch each other and the line. Draw another circle of the same size above the first

two which just touches both. Now connect the centers of the three circles with straight lines. Draw a vertical line from the top of the triangle in the picture to the line you drew first.

Percentages of success for adults were as follows:

| Group | % Correct |
|---|---|
| Southeast | 42.1 |
| Central | 64.2 |
| West | 64.6 |
| Northeast | 65.0 |

Southeast young adults, moreover, fared even less well than any of the school-age groups in the Southeast. Those adults had particular difficulties in understanding words and word relationships and in drawing inferences.

Western school-age respondents tended to be at or slightly below the national level; however, Western adults were somewhat above the national level on every theme and objective. In contrast, adults from the Northeast performed at about the national level on five of the eight themes, whereas Northeastern 9, 13 and 17-year-olds were somewhat better than the national level on most themes. Central adults did not do relatively as well as the school-age populations from that region. The Central adults were at the national level on three themes--main ideas and organization, drawing inferences and critical reading--and somewhat above on the others. However, all three school-age groups from the Central region were above the national percentage on all themes. The 17-year-olds from that region performed especially well on graphic materials, written directions and reference materials.[1]

## Summary

Without question, there is a correlation between membership in certain groups and a low or high level of success on reading exercises. School-age males read consistently below females; Blacks were consistently below the national population; people

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[1]Detailed charts with median values, group differences and directional tendencies can be found, along with technical summary data, in *Report 02-R-00, Reading: Reading Summary,* 1970-71 National Assessment of Reading.

from the Southeastern states were consistently below their counterparts in other states; people from families where neither parent has gone to high school were consistently below those whose parents have more education; students from inner city areas read less well than those from any other STOC group. Conversely, females generally had a higher percentage of reading success than males did; Whites were consistently above the national level; 9-year-olds, 13-year-olds and 17-year-olds from homes in the affluent suburbs or from homes where at least one parent has had post high school education read well above the national level.

One must be cautious, however, not to equate membership in a particular group with high or low or "average" reading success, since a cause-effect relationship does not necessarily exist.

The basic data presented in this report identify where problems in performance exist. They do not explain why these problems exist.

In particular, while Black performance is generally low, it should be noted that a high proportion of Blacks come from homes where the level of education is not high, a high proportion live in the inner city and in Southeast rural areas. On the other side of the coin, many factors--not measured in this Reading assessment--might account for a group's success. For example, coming from a wealthy family, having access to numerous books and cultural experiences, attending schools that have excellent resources and facilities, all could contribute in some way to reading success.

Not only were numerous factors of possible influence not measured in this assessment, combinations of the factors that were assessed are not reported, mainly because the size of the sample on individual exercises in this assessment was not large enough to provide reliable results. As a result, we report no figures for the reading performance of, for example, Black, female adults from medium cities in the Northeast, or for rural, White, male 13-year-olds whose fathers graduated from high school or any other combinations. Each group has been examined separately in terms of its performance on individual exercises on themes and on all exercises combined.

* * * * * * * * *

These general conclusions have been based on median values of all Reading exercises combined.[2] They describe a group's

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[2]See Appendix A.

overall performance on various sets of exercises. They do not tell us on which exercises a specific group read particularly well or performed quite differently from its overall performance. We indicated, for example, that school-age boys consistently had percentages of success that were significantly below those of girls at the same age level. However, on some exercises boys performed better than girls. Such an occurrence does not show up when only summary data are examined. We therefore need to look at each theme, at each set of exercises and especially at specific Reading exercises on which atypical results for a particular group occurred.

Furthermore, it has not been the role of the National Assessment office to investigate why differences exist between various groups or to suggest what might be done to minimize those differences. However, it is concerned with these questions. National Assessment therefore invited a group of educators in the field of reading to a symposium to discuss the general findings of this study, to speculate about variations in group performance and to suggest what value these findings might have for classroom teachers and reading specialists. Their comments are recorded in the last section of this report.

## CHAPTER 2

## RECIPES, WRAPPERS, REASONING AND RATE

The patterns described in Chapter 1 were fairly constant throughout each of the eight themes in the 1970-71 Reading assessment. For example, percentages of respondents in the size and type of community (STOC) categories who correctly answered a particular exercise fall into a pattern of inner city lowest, affluent suburb highest and the other groups step-by-step in between, with very few variations. Exercise R21402 is a typical example. The exercise asked students to look at a map of a small area and decide if a certain highway runs between two towns. The following percentages of success occurred with 9-year-olds:

| Group | % Correct |
|---|---|
| Extreme inner city | 59.5 |
| Extreme rural | 79.7 |
| Small city | 81.9 |
| Medium city | 80.3 |
| Rest of big city | 83.3 |
| Suburban fringe | 86.4 |
| Extreme affluent suburb | 90.2 |

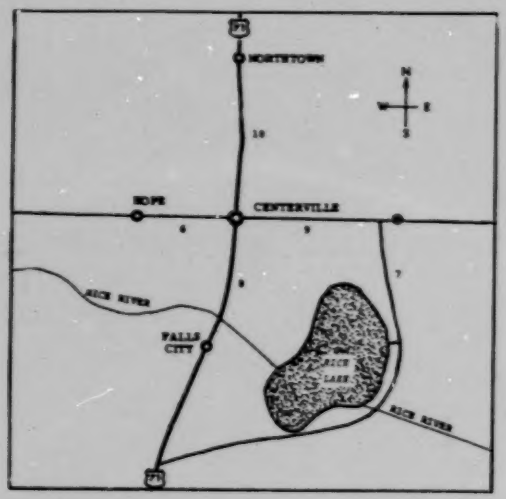
Similar patterns were fairly consistent throughout each of the four age levels.

In addition, where exercises were administered at more than one age level, each higher age usually attained greater success on individual exercises as would be expected. However, interesting variations sometimes occurred.

Exercise R214 provides a typical example of increased percentages of success with increased age: the exhibits on the next two pages show that 79% of the 9-year-olds responded correctly to the map-reading exercise, while the percentage for 13-year-olds was 85% and for 17-year-olds 95%. That kind of progression was consistent in every one of the groups identified in the assessment. Overlapping exercises such as this one, and varying

# EXHIBIT 1. Exercise R214 Results for Ages 9, 13 and 17

Look at the road map and read each sentence carefully. If what the sentence says is true, fill in the oval beside "True." If what the sentence says is not true, fill in the oval beside "False." If you can't decide if the sentence is true or false, fill in the oval beside "I don't know."




A. By car Northtown is closer to Rice Lake than to Hope.

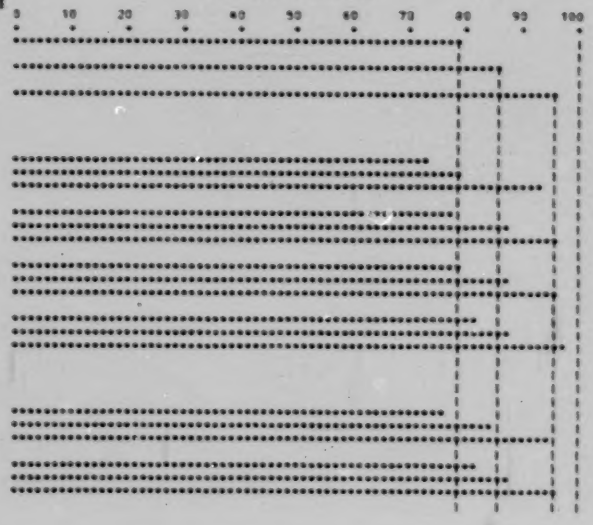
- ○ True
- ● False
- ○ I don't know.

```
W08 06  3/1  02*E214013 R0030070                    9 13 17
T10 06  3/1  02*E214013 R0030070                    9 13 17
S06 06  3/1  02*E214013 R0030070                    9 13 17
```

NATIONAL AND GROUP PERCENTAGES OF SUCCESS

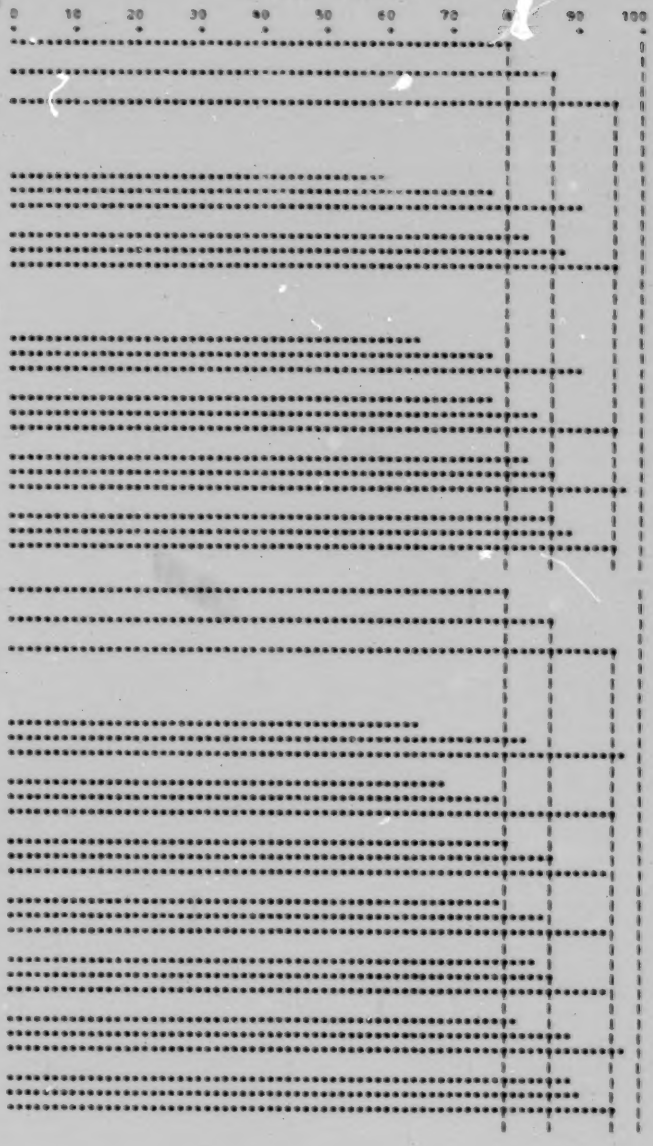
| | | AGE LEVEL | PERCENTAGE OF SUCCESS | | PERCENTAGE DIFFERENCE |
|---|---|---|---|---|---|
| | NATIONAL | 9 | 70.5 | | |
| | NATIONAL | 13 | 85.1 | 9-->13 | 6.6 |
| | NATIONAL | 17 | 95.3 | 13-->17 | 10.2 |
| | | | | 9-->17 | 16.8 |
| REGION | | | | | |
| | Southeast | 9 | 73.3 | | |
| | | 13 | 78.1 | 9-->13 | 4.8 |
| | | 17 | 93.3 | 13-->17 | 15.2 |
| | | | | 9-->17 | 20.0 |
| | West | 9 | 77.7 | | |
| | | 13 | 87.1 | 9-->13 | 9.4 |
| | | 17 | 95.4 | 13-->17 | 8.3 |
| | | | | 9-->17 | 17.7 |
| | Central | 9 | 79.2 | | |
| | | 13 | 87.4 | 9-->13 | 8.2 |
| | | 17 | 95.3 | 13-->17 | 8.0 |
| | | | | 9-->17 | 16.2 |
| | Northeast | 9 | 81.9 | | |
| | | 13 | 87.6 | 9-->13 | 5.6 |
| | | 17 | 96.7 | 13-->17 | 9.2 |
| | | | | 9-->17 | 14.8 |
| SEX | | | | | |
| | Male | 9 | 76.1 | | |
| | | 13 | 83.6 | 9-->13 | 7.6 |
| | | 17 | 94.9 | 13-->17 | 11.2 |
| | | | | 9-->17 | 18.8 |
| | Female | 9 | 80.9 | | |
| | | 13 | 86.4 | 9-->13 | 5.5 |
| | | 17 | 95.8 | 13-->17 | 9.3 |
| | | | | 9-->17 | 14.8 |

PERCENTAGE OF SUCCESS



NATIONAL AND GROUP PERCENTAGES OF SUCCESS

| | AGE LEVEL | PERCENTAGE OF SUCCESS | | PERCENTAGE DIFFERENCE |
|---|---|---|---|---|
| NATIONAL | 9 | 78.5 | | |
| NATIONAL | 13 | 85.1 | 9-->13 | 6.6 |
| NATIONAL | 17 | 95.3 | 13-->17 | 10.2 |
| | | | 9-->17 | 16.8 |
| COLOR | | | | |
| Black | 9 | 60.7 | | |
| | 13 | 75.5 | 9-->13 | 14.8 |
| | 17 | 90.4 | 13-->17 | 14.9 |
| | | | 9-->17 | 29.7 |
| White | 9 | 81.4 | | |
| | 13 | 87.2 | 9-->13 | 5.7 |
| | 17 | 96.0 | 13-->17 | 8.8 |
| | | | 9-->17 | 14.6 |
| PARENTAL EDUCATION | | | | |
| No High School | 9 | 64.0 | | |
| | 13 | 75.5 | 9-->13 | 11.4 |
| | 17 | 90.2 | 13-->17 | 14.7 |
| | | | 9-->17 | 26.1 |
| Some High School | 9 | 75.1 | | |
| | 13 | 83.5 | 9-->13 | 8.3 |
| | 17 | 95.4 | 13-->17 | 11.9 |
| | | | 9-->17 | 20.2 |
| Graduated High Sch. | 9 | 81.9 | | |
| | 13 | 86.2 | 9-->13 | 4.2 |
| | 17 | 96.6 | 13-->17 | 10.4 |
| | | | 9-->17 | 14.6 |
| Post High School | 9 | 85.6 | | |
| | 13 | 88.6 | 9-->13 | 3.0 |
| | 17 | 96.3 | 13-->17 | 7.7 |
| | | | 9-->17 | 10.7 |
| NATIONAL | 9 | 78.5 | | |
| NATIONAL | 13 | 85.1 | 9-->13 | 6.6 |
| NATIONAL | 17IS | 95.3 | 13-->17 | 10.3 |
| | | | 9-->17 | 16.9 |
| SIZE-AND-TYPE OF COMMUNITY | | | | |
| Extreme Inner City | 9 | 63.6 | | |
| | 13 | 81.6 | 9-->13 | 18.0 |
| | 17IS | 96.8 | 13-->17 | 15.2 |
| | | | 9-->17 | 33.2 |
| Extreme Rural | 9 | 69.0 | | |
| | 13 | 76.9 | 9-->13 | 7.8 |
| | 17IS | 95.9 | 13-->17 | 19.0 |
| | | | 9-->17 | 26.7 |
| Small City | 9 | 78.6 | | |
| | 13 | 85.7 | 9-->13 | 7.1 |
| | 17IS | 94.6 | 13-->17 | 8.9 |
| | | | 9-->17 | 15.9 |
| Medium City | 9 | 76.6 | | |
| | 13 | 84.4 | 9-->13 | 7.8 |
| | 17IS | 94.9 | 13-->17 | 10.6 |
| | | | 9-->17 | 18.4 |
| Rest Of Big City | 9 | 82.5 | | |
| | 13 | 86.0 | 9-->13 | 3.5 |
| | 17IS | 93.7 | 13-->17 | 7.7 |
| | | | 9-->17 | 11.2 |
| Suburban Fringe | 9 | 80.0 | | |
| | 13 | 88.5 | 9-->13 | 8.5 |
| | 17IS | 96.6 | 13-->17 | 8.1 |
| | | | 9-->17 | 16.6 |
| Extreme Aff Suburb | 9 | 88.8 | | |
| | 13 | 90.1 | 9-->13 | 1.3 |
| | 17IS | 96.0 | 13-->17 | 5.9 |
| | | | 9-->17 | 7.2 |



patterns of responses to them, provide the major foci of this chapter.[1]

## Understanding Words and Word Relationships--Theme 1

Almost all 9-year-olds in the United States in 1970-71 could read signs on doors that indicate which door they would go through for lunch (CAFETERIA) or to see the person in charge of the school (PRINCIPAL). Specifically, 95% of the 9-year-olds were able to do so, with the typically lower-performing groups having slightly lower percentages of success (e.g., 85% of Black 9-year-olds chose CAFETERIA as the place to go for lunch).

Ninety percent or more of the 9-year-old population chose the correct response in 12 of the 13 vocabulary exercises in this theme. But 12% of the nation's 9-year-olds failed to complete the sentence that began: "The boy wanted...." The majority correctly chose "a new ball" to complete the sentence, but 4% chose "stopped raining."

Theme 1 results also indicate that most 13-year-olds were able to choose the correct meaning of simple words in isolation--words such as never and classroom. However, in one instance, 24% failed to select the correct meaning for "chatter" used in context to describe the communication between two otters. The difficulty there might be with the word "otter" as well as with "chatter."

It is inappropriate to make any generalizations about the vocabulary of 17-year-olds and young adults since NAEP has released only three of the exercises for 17-year-olds and one for adults in this theme. Two overlapping exercises, however, are interesting to examine.

Exercise R10601 presents two key words--dangerous and ferocious--as follows:

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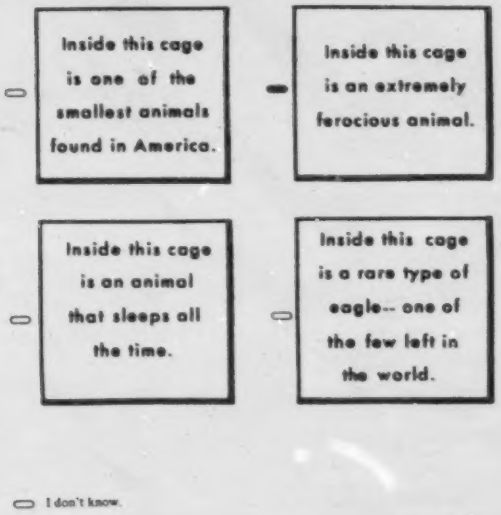
[1]We are prevented from discussing variations in all of the exercises in the Reading assessment because only about half of all the exercises have been released to the public and are available for examination. The remaining half have been retained for use in the next assessment. See *Report 02-R-20, Reading: Released Exercises*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973) for a copy of each released exercise and accompanying data.

## EXHIBIT 2. Exercise R10601

People who run zoos sometimes put signs on animal cages to tell what the animals are like or where they come from. If you went to a zoo and saw these four signs on different cages, which one would tell you that there is a dangerous animal inside the cage? Fill in the oval beside the correct sign.


Inside this cage is one of the smallest animals found in America.
Inside this cage is an extremely ferocious animal.
Inside this cage is an animal that sleeps all the time.
Inside this cage is a rare type of eagle-- one of the few left in the world.
I don't know.

About 84% of the 9-year-olds chose the correct alternative. However, 11% of the 9-year-olds chose the sign at the cage containing the eagle--possibly because that bird is considered to be fierce and even dangerous. That small segment of the population probably reacted to the animal with which they were familiar and did not pay much attention to the specifics of the other signs; or, if they paid attention to the other signs, they possibly did not know the meaning of ferocious.

While 15% of the 9-year-olds missed this exercise, only 4% of the 13-year-olds did. For the nation as a whole, then, only one fourth as many 13-year-olds as 9-year-olds missed this. There were, moreover, much larger increases among the groups that usually had lower levels of success. The no high school group jumped from 70% at age 9 to 91% at age 13. Black students' percentages increased from 63% at age 9 to 84% at age 13. The performances of inner city youngsters were even more spectacular: they showed an increase of 27 percentage points from 63% at age 9 to 90% at age 13. On the other hand, 89% of the White 9-year-olds were correct to begin with and so showed an increase of only 9 percentage points at age 13; 93% of the 9-year-old post high school group responded correctly; and 96% of the 9-year-old affluent suburb group chose the correct sign. All three of those high-performance groups had success levels of 97-98% at age 13.

Exercise R12001 presents a slightly different picture. This extremely difficult exercise asked respondents to read a four paragraph passage from *The Organization Man* and to select the best definition of the term "budgetism" from five possibilities. The exercise was administered at age 13, 17 and young adult, even though the readability of the passage was far above the average reading level of 13-year-olds. Across the national population, only 18% of the 13-year-olds chose the correct foil. The correct choice increased to 25% for 17-year-olds and 43% for young adults. Most groups in the study showed a similar progression from age 13 to young adults, though four groups did not. Southeastern 17-year-olds did no better than Southeastern 13-year-olds, although Southeastern adults showed an increase of nearly 13 percentage points over the 13-year-olds. Black adults were not significantly better than Black 13-year-olds; only 18% of the adults were correct. Black 17-year-olds were 4 percentage points below that. (The percentage correct for White adults was more than twice that for Black adults.) Inner city 17-year-olds did about as well as inner city 13-year-olds on this exercise.[2]

## Graphic Materials--Theme 2

Most 9-year-olds in 1970-71 seemed to be able to read common street signs and food wrappers. Between 65% and 90% of the students at that age could distinguish between signs for motorists, pedestrians and bicyclists, could follow directions to use crosswalks and could read food wrappers for products such as bubble gum and dog food, as found in exercises of the type reproduced in Exhibit 3.

On the map-reading exercise in Exhibit 1, between 52% and 85% of the 9-year-olds correctly answered each of the five true/false questions, but only 33% of the students answered all five parts correctly.

On the exercises in Exhibit 2, 13-year-olds in all categories did much better than 9-year-olds, as would be expected. For example, while nearly 35% of the 9-year-olds failed to read the bubble gum wrapper correctly, only 5% of the 13-year-olds failed to do so. Similarly, on the exercises containing a street sign that directed people where to ride their bicycles, 69% of

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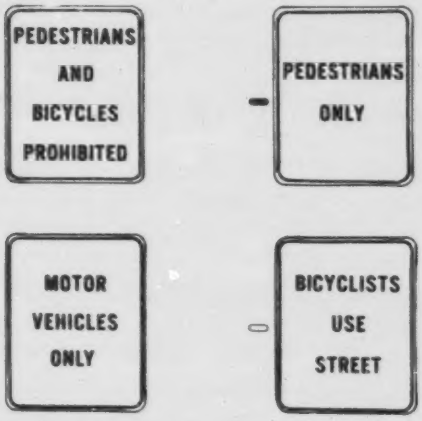
[2]For a complete discussion of each released exercise in this theme, refer to *Report 02-R-01, Theme 1, Reading: Understanding Words and Word Relationships,* 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973).

# EXHIBIT 3. Sample Exercises from Theme 2

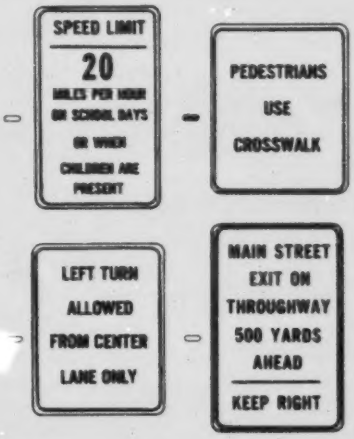
Which sign shows where walking is permitted?




I don't know.

Some road signs tell people who are driving cars what to do. Other signs tell people who are walking what to do.

If you are walking, which sign tells you what to do? Fill in the oval beside the correct sign.




I don't know

If you wanted to buy some bubble gum that would stay sweet for a long time, which of these would you buy? Fill in the oval beside the bubble gum you would buy.

I don't know

Look at the labels from two cans of dog food. One can has more protein in it than the other. Fill in the oval below the dog food that contains more protein.

| | |
|---|---|
| Ash | 3% |
| Crude fiber | 17% |
| Crude protein | 65% |
| Crude fat | 11% |
| Moisture | 4% |
| Vitamin E | trace |

PREMIUM DOG FOOD
A Beef Product

| | |
|---|---|
| Ash | 2% |
| Crude fiber | 45% |
| Crude protein | 20% |
| Crude fat | 30% |
| Moisture | 3% |
| Vitamin E | trace |

HEARTY DOG FOOD
A Balanced Meal

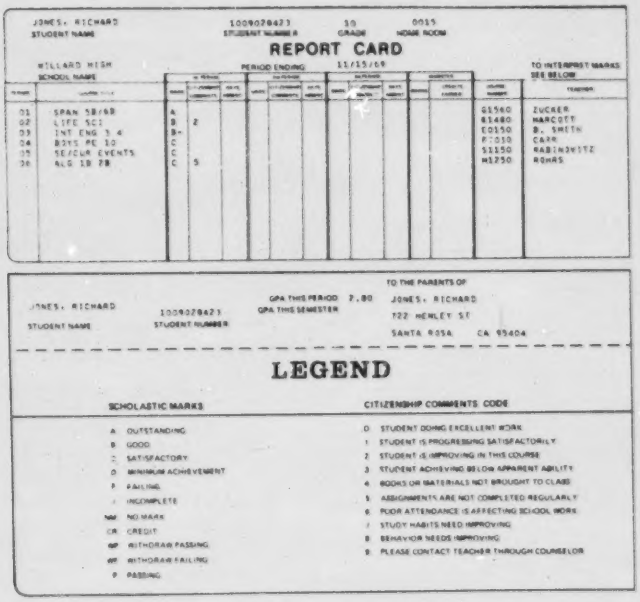
I don't know.

the 9-year-olds chose the correct sign, while 89% of the 13-year-olds and 96% of the 17-year-olds did so.

Nearly 54% of 13-year-olds and 74% of 17-year-olds and young adults could correctly read the lines on a graph that tells between which hours most driving fatalities occur. But only 17% of the 13-year-olds, 35% of the 17-year-olds and 43% of the adults were able to tell which of five statements was not a factual conclusion derivable from that same graph.

On a slightly different kind of form, respondents were asked a variety of questions which required them to read symbols and interpret notations on a report card, a copy of which appears in Exhibit 4.

EXHIBIT 4. Report Card Exercise



JONES, RICHARD — STUDENT NAME
1009028423 — STUDENT NUMBER
10 — GRADE
0015 — HOME ROOM

REPORT CARD

WILLARD HIGH — SCHOOL NAME
PERIOD ENDING 11/15/69
TO INTERPRET MARKS SEE BELOW

| | | |

grade: foreign language. A number of adults also erred on this exercise: only 76% of them chose the correct answer, 4 percentage points below 17-year-olds. Although not all report cards used in the United States are identical to this facsimile, it should be somewhat disconcerting to teachers and school administrators that nearly one fifth and maybe as many as half of the 13-year-olds in the country in 1970-71 could not interpret some of the symbols on a report card, and that from 10% to 20% of the nation's 17-year-olds could not read some parts of the report card either. It might also be comforting to some students and shocking to others that nearly one fourth of their parents were unable to tell in which subject the student improved during the semester.

Percentages on that exercise--R22701--were unusually low for Blacks and for adult females. The percentages of success were as follows for Blacks: 25% for age 13, 53% for age 17 and 42% for adults. For females the percentages were: 56% for age 13, 84% for age 17 and 73% for adults. Both 13 and 17-year-old females were better than males, but adult females were 5.6 percentage points below males.[3]

## Written Directions--Theme 3

The exercises in Theme 3 required respondents to interpret or follow written directions for such activities as drawing a geometric figure, baking English muffins, using a can of insecticide spray and playing a hypothetical card game. The results tend to confirm what a lot of teachers and parents have intuitively and experientially known all along: many students cannot follow simple directions. Thirty percent of the nation's 9-year-olds and 10% of the 13-year-olds failed to follow the four simple directions that appear in Exhibit 5. The percentages of correct responses for 9-year-olds who were Black, who were from inner city areas or whose parents had no high school education were less than 50%.

When directions became complex, the percentages who successfully completed the task decreased considerably. Only 33% of the 13-year-olds, 62% of the 17-year-olds and 61% of the young adults in the nation were able to satisfactorily draw the figure required by Exercise R314 (Exhibit 6). For 13-year-olds, only

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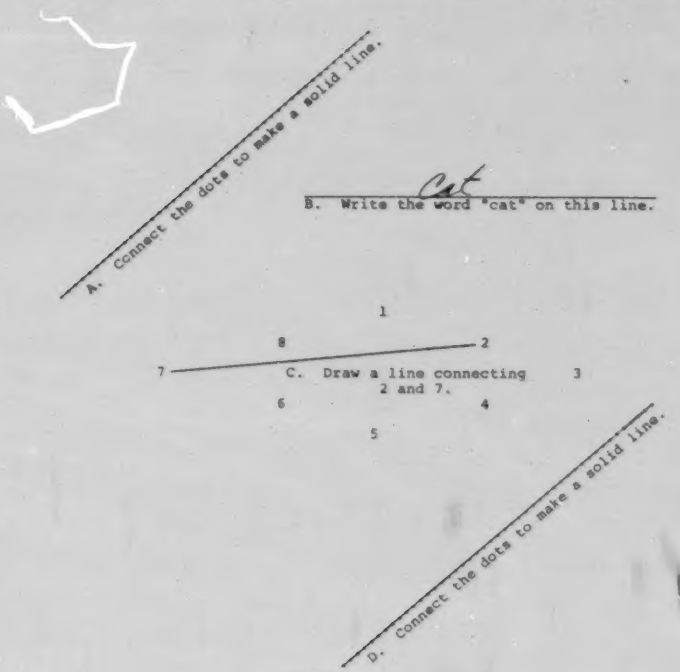
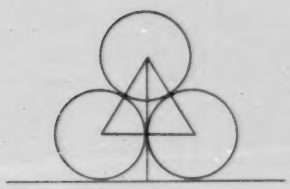
[3]For more detailed descriptions of individual exercises, refer to *Report 02-R-02, Theme 2, Reading: Graphic Materials*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973).

## EXHIBIT 5. Sample Exercise from Theme 3




## EXHIBIT 6. Exercise R314

Draw a horizontal line near the bottom of the page. Draw two circles approximately one inch in size above the line which just touch each other and the line. Draw another circle of the same size above the first two which just touches both. Now connect the centers of the three circles with straight lines. Draw a vertical line from the top of the triangle in the picture to the line you drew first.



21% from the Southeast had all parts correct, 24% of the rural and 13% of the inner city 13-year-olds had the figure correct and 95% of the nation's Black 13-year-olds failed to complete the figure acceptably.

On that same exercise--R31401--68% of the adult males drew the figure correctly, compared to only 54% of the adult females. Seventeen-year-old girls were better than adult females on this exercise, with 62% drawing it correctly. In addition, only 18% of the Black adults compared to 66% of the White adults had satisfactory drawings.

Home economics teachers should not be too pleased to learn that only 66% of the nation's 13-year-olds and about three fourths of the 17-year-olds could find from a printed recipe the correct information on how to bake English muffins. Only 36% of the 9-year-olds, 66% of the 13-year-olds, 65% of the 17-year-olds and 86% of the young adult population could correctly select the time it takes to bake the muffins. Moreover, when asked to identify the four ingredients that are added after the yeast is softened in water, 78% of the 13-year-olds and 62% of the 17-year-olds failed to do so.

Eight of the exercises in Theme 3 were based on the rules for a card game called WIN-EM-ALL. The respondents had to read the directions and then write their answers to questions such as: Who deals first? How many can play the game? Who plays first? How is the winner of the game determined? Between 50% and 91% of the 13-year-olds and between 63% and 93% of the 17-year-olds answered correctly. Nearly 54% of the 13-year-olds and 63% of the 17-year-olds answered all of the first four questions accurately; 35% of the 13-year-olds and 66% of the 17-year-olds correctly answered all of the second set of four questions. It appears that in these instances 13-year-olds were better readers of rules for card games than of recipes for baking.

If one is surprised by the apparent low level of success on some of these exercises, it should be kept in mind that few of the activities encountered in these exercises are taught in schools, even though they are realistic measures of students' abilities to read and follow directions.[4]

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[4]Refer to *Report 02-R-03, Theme 3, Reading: Written Directions*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973) for additional descriptions of the exercises in this theme.

## Reference Materials--Theme 4

Do students know what type of publication or what part of a book to refer to if they want information about such topics as Eskimos or windmills? Can students use a dictionary, the index from a science text, the table of contents from a weekly news magazine? How well can Americans read the program listings and descriptions in *TV Guide*? On some kinds of reference questions students in 1970-71 did well; on others they did not. It's difficult to ascertain exactly why there was no consistency.

For example, less than half the 9-year-olds in the nation knew that "the BEST way to find out if there is something about Eskimos in a book" is to look in the index. One fifth of them chose to look at the title page, 10% to go to the glossary, 9% to look through all the pages and another 9% to skim through the introduction. If they are to use books as reference materials, many of the 9-year-olds in this country obviously need a few lessons and some positive experiences in how to use a book. Many 13-year-olds would probably be helped by such a lesson also: 32% of them failed to choose the index as the best place to look. The next largest percentage--13%--chose to skim through the introduction.

If they had to tell their class about windmills, 57% of the students at age 9 and 90% at age 13 would rightly go to an encyclopedia. One fourth of the 9-year-olds said they would go to a dictionary (only 6% of the 13-year-olds were sympathetic to that), and nearly 4% of the 9-year-olds would try the yellow pages in the telephone book!

Some students experienced difficulty in locating information when they had to use alphabetizing skills; 37% of the 9-year-olds and 14% of the 13-year-olds were unable to decide between which of the following sets of names in a telephone directory they would find a phone number for Mr. Jones:

Jackson and Jacobs
Jacobs and James
James and Johnson
Johnson and Judson
Judson and Justus

Interestingly, rural students at ages 9 and 13 did much better than usual on this exercise, with 66% and 83% correct, respectively. Thirteen-year-olds from small cities did better than any other STOC group with 89% right.

Most 9-year-olds did not use dictionaries very well. But older students and young adults did quite well. Ninety percent

or more of the 13 and 17-year-olds as well as the adults correctly located information asked for in five questions. Apparently, dictionary skills are most often acquired between ages 9 and 13. Only 38% of the 9-year-olds answered all five questions correctly; 83% of the 13-year-olds had all five correct, as did 92% of the 17-year-olds and 87% of the adults. On this exercise, adults were not quite as proficient in using the dictionary as were 17-year-olds. Frequency of use may be largely responsibile for that difference in proficiency.

Thirteen and 17-year-olds appeared to be capable of using the index to a weekly news magazine, providing they understood the vocabulary. Nearly 95% of the students at age 13 and 96% at age 17 identified the page on which science news could be found, but some were confused when asked to find the page where a review of a current movie could be found. Among 13-year-olds, 13% chose television, 54% chose theater and only 26% chose cinema. Cinema to many youngsters is probably not associated with movies as much as theater is; one usually goes to a movie theater. Seventeen-year-olds seemed to be a bit more sophisticated: 62% of them chose the correct heading, while 31% chose theater and nearly 6% chose television.

Throughout most of the exercises in this theme, the usual patterns appeared among groups within the various categories: i.e., Blacks below the national level, Southeast below the other three regional groups, females better than males. Each older age level performed better than the younger age levels where an exercise was administered at more than one age level. But with one type of exercise, some variations occurred. The exercise was in the R413 series and involved reading a facsimile of a television program guide (Exhibit 7).

The smallest percentage correct for 9-year-olds was on the question: "Which program is being run for at least a second time?" Only 37% of the students at age 9 wrote an acceptable answer. That age level's highest percentage (73%) was gained on the question: "At what time are the cartoons shown?" That same question seemed to be the easiest for all other age levels as well, with all four age levels attaining their highest percentages of any of the five parts. The second highest percentage (59%) for 9-year-olds was attained on the fifth question: "How long is the program on Channel 6 at 3:00 p.m.?" (Those questions were, it is interesting to note, based on the first and last programs listed in the guide.) The fifth question--where the detail was embedded in the sentence--was the most difficult for all three of the other age levels; only 61% of the 13-year-olds, 69% of the 17-year-olds and 80% of the adults answered that one correctly.

Even though between 37% and 73% of the 9-year-olds could answer individual questions about the television programming,

## EXHIBIT 7. Exercise R413 Stimulus

Here is part of a TV guide you might find in a newspaper. After reading it, answer the questions which follow it.*

2:00 p.m. [2] Super Mutt - Cartoons

[4] Baseball [Color] Teams to be announced. (Runs to 4:00, followed by Baseball Scoreboard.)

[5] Top Cat - Cartoons

[7] Movie - Mystery
"Master Sleuth" (1945) Master detective (Bob Johnston) and sidekick (Pat Morgan) are on the trail of a deadly escaped convict. Sue Jones, Mort Roberts (90 min.)

2:30 p.m. [2] Children's Variety [Repeat]
Today the show goes to Detroit to watch cars being assembled. (60 min.)

[5] Visit the Zoo [Special]
Famous San Diego Zoo is toured.

3:00 p.m. [4] Music Beat.
Jay Nickels hosts an hour of popular music of local groups.

*Adapted from *TV Guide* ® *Magazine*, with permission.

only 11% answered all five questions correctly. For adults, 62% answered all five correctly, even though the percentages correct on each part were between 80% and 94%. About one third of the 13-year-olds and slightly more than half of the 17-year-olds answered all five questions correctly.

Older respondents were more proficient readers of the television program than were younger readers generally, except on the question dealing with the length of the Channel 6 program at 3:00 p.m. In that instance, the performance of 9-year-olds was better than 13-year-olds in the following groups: males, Blacks, no high school, some high school, small city, rest of big city and affluent suburb.

In the first part of that exercise--R41301--there was no difference in the percentages for White 17-year-olds and White adults: 87% for each. Black adults, although considerably lower than Whites, showed improvement over Black 17-year-olds: age 9, 27%; age 13, 46%; age 17, 59%; adults, 65%.[5]

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[5]See *Report 02-R-04, Theme 4, Reading: Reference Materials*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973) for a more detailed description of individual and overlapping exercises in this theme.

## Gleaning Significant Facts from Passages--Theme 5

In this theme, respondents were asked to search for details and important factual information in various types of selections, most of which were from one to three paragraphs long. The majority of the passages were non-fiction; a few were from fictional materials; other selections varied from a short William Carlos Williams poem to a fire prevention advertisement.

Median national percentages across all exercises in this theme were relatively high: 60% at age 9, 69% at age 13, 84% at age 17 and 91% at ages 26-35. It is not possible, however, to say that American students or adults performed better on the identification and recall of factual details than they did on graphic materials, or drawing inferences, or on any of the other reading skills, because the kinds and the difficulty level of the exercises are not comparable across themes. It is not possible to tell whether a relatively high median percentage or a low one on this or any other theme is attributable to the difficulty of the exercises, to the ability of the respondents or to some other obscure variables.

On the other hand, it is not difficult to see that typical patterns of performance exist throughout most of the exercises. Noted below are the few exercises which do not follow that pattern.

Poetry, as most teachers know, is not a favorite literary pursuit for many school children, and it often becomes less attractive for older students. In the poem printed below (Exhibit 8), 13-year-olds did not do much better than 9-year-olds when asked to identify which words tell when the buttons scattered. Nearly 77% of the 9-year-olds and 81% of the 13-year-olds chose the fourth alternative. The second foil was the next favorite with both ages. Most groups of 13-year-olds were slightly better than the 9-year-olds. But among small city and affluent suburb groups, 13-year-olds were a percentage point or two below 9-year-olds. Even more surprising was the fact that 70% of the 9-year-olds in the no high school parental education group had the right answer while only 61% of the 13-year-olds in that parental education group did.

In Exercise R52301, respondents were asked to name the bear pictured in an advertisement from a national magazine reproduced in Exhibit 9. The National Forest Service and The Advertising Council should be delighted to know that 93% of the country's 13-year-olds, 98% of the 17-year-olds and 96% of the young adults recognized Smokey. (From 1% to 2% of the respondents thought his name might be "Forest.") The only groups in the entire assessment that had less than 90% accuracy were 13-year-old and adult Blacks (with 86%) and 13-year-olds whose parents had no high school education (with 87%).

## EXHIBIT 8. Exercise R515, Theme 5

As the cat climbed o^v^er

The button box

He went one foot at a time

The right forepaw

came

down

first

A hind foot caught

In the button box

Buttons

Sc^a^tt^e^r^e^d in all directions.*

Which words tell WHEN the buttons scattered?

- ○ When the cat's nose pushed the box
- ○ When the cat's forepaw struck the box
- ○ When the cat's tail knocked the box over
- ● When the cat's hind foot caught in the box
- ○ I don't know.

*Poem adapted from William C. Williams, "Poem," *The Collected Earlier Poems of William Carlos Williams* (New York: New Directions Publishing Corporation, 1951), p. 340. Reprinted by permission of the publisher.

## EXHIBIT 9. Exercise R52301, Theme 5

A FOREST'S FUTURE IS IN YOUR HANDS
Every one, every shrub, and all our wildlife
depend on you to help prevent forest fires.
So please follow Smokey's ABC's. Always hold
matches till cold. Be sure to drown all campfires,
stir the ashes, and drown them again.
Crush all smokes dead out.
Please! Only you can prevent forest fires.

*Published as a public service in cooperation with The Advertising Council*

"A Forest's Future is in Your Hands." Reprinted by permission of the Forest Service, United States Department of Agriculture, Washington, DC.

In a second exercise--R52302--based on the same advertisement, respondents were asked what the advertisement tells people to do. About 86% of the 13-year-olds, 92% of the 17-year-olds and 90% of the adults answered correctly. On that exercise, Black responses deviated from the usual pattern; only 82% of the Black adults answered correctly, compared to 89% of the Black 17-year-olds.

Black adults were also quite far below Black 17-year-olds on Exercise R52501 which required readers to pick out from the first sentence in a short, two-paragraph selection the specific fact that 9 out of 10 Americans are in debt. On the national level, from 90% to 94% of the adults as well as the 13 and 17-year-olds answered correctly. But only 76% of the Black adults chose the correct foil. That was nearly 10 percentage points lower than Black 17-year-olds and even 6 percentage points below Black 13-year-olds.

Perhaps the most interesting results from this theme occurred in connection with Exercise R530. Respondents at the 13-year-old level or above were instructed to read a short narrative paragraph and answer three questions by recall: in what city, in what month and on what day does the story take place? This exercise, then, measured not only identification of details but also immediate recall of them. The story takes place in a small apartment in Brooklyn where a boy is contemplating running away from school. Surprisingly, all three age groups had nearly identical percentages: 62.8%, 61.6% and 62.0%, respectively, for 13-year-olds, 17-year-olds and young adults. What is even more interesting is that the highest percentages on this exercise were attained by inner city 13-year-olds--71% had all three details right. The percentage for the rest of big city 13-year-olds was 72%. They were followed by adults from the Northeast (where Brooklyn is located) and rest of big city 17-year-olds. The closeness of the subject matter to the respondents probably accounted for their higher percentage of success.[6]

## Main Ideas and Organization--Theme 6

The exercises in this theme required respondents to select titles or statements that best express the main ideas of selections of varying length and reading difficulty. There are also

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[6]*Report 02-R-05, Theme 5, Reading: Gleaning Significant Facts from Passages*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973) contains additional data and discussion of results for this theme.

exercises that ask respondents to note the order in which the events occur in a story or poem or that ask for the type of organization (e.g., chronological order) used to develop a story or biography.

Between 25% and 85% of the 9-year-olds were able to select appropriate statements of the main ideas in a variety of selections, depending on the difficulty of the selection. Increasingly larger percentages of success were attained at each older age level in most instances. The usual patterns of degrees of success occurred throughout all but four of the released exercises in this theme. Those exceptions are described below.

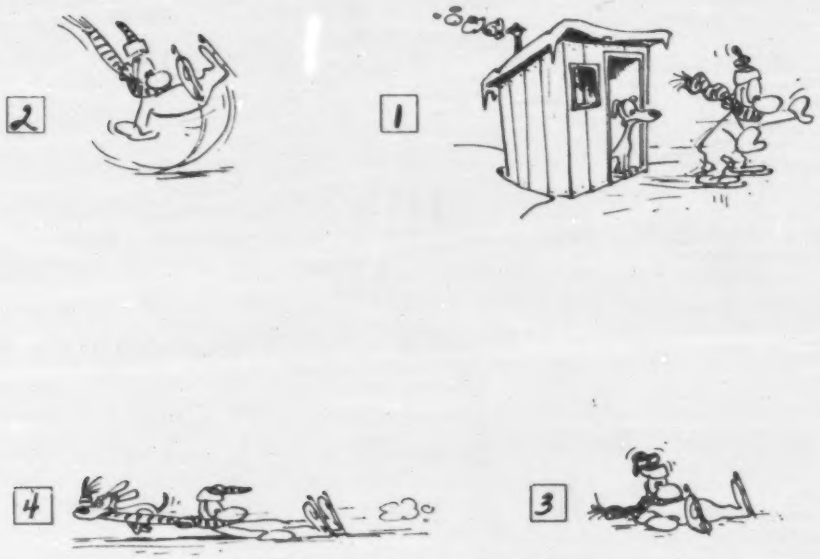
When asked to pick the best one of four possible titles for a paragraph about the history of Easter eggs (Exercise R60401), 26% of the 9-year-olds, 54% of the 13-year-olds and 64% of the 17-year-olds did so. (The large increase from age 9 to age 13 may be accounted for in large part by the readability of the selection and not primarily by a sudden increase in the ability of 13-year-olds to identify main ideas.) On this exercise, the affluent suburban students performed better than the inner city students by a wide margin at all three age levels. Fifteen percent of the inner city (in contrast to 45% of the affluent suburban) 9-year-olds answered correctly. At age 17, the percentage of inner city correct responses rose to 45%, three times as great as that for 9-year-olds. Unfortunately, that 45% for inner city 17-year-olds only equaled the percentage for suburban 9-year-olds. In comparison, nearly 83% of the suburban 17-year-olds answered correctly.

Exercise R61201 required that respondents identify the main idea of a short selection on ecology, the point of which is that all living things are affected by other living things. Nine-year-olds were again low--27%--on this exercise, most likely because of the difficult readability level of the selection. In contrast, 75% of the 13-year-olds and 91% of the 17-year-olds chose the desired response. Adults, however, although they did well--87%--did not do quite as well as 17-year-olds did. That pattern held throughout all groups within the study. Perhaps the higher percentage for 17-year-olds reflects the present concern of older teen-agers for ecology.

Another Theme 6 exercise (R61501) on which 17-year-olds performed extremely well asked for the main idea of a passage about sports cars and how they differ from passenger cars. Nearly 100% of most 17-year-old groups chose the correct response to this exercise. Seventeen-year-olds were slightly better than adults. The lowest percentage of success on this exercise was attained by 9-year-old Black students; only 60% of them chose the correct foil, 24 percentage points below the national level for age 9.

The four pictures reproduced in Exhibit 10 constituted Exercise R62801. Respondents of age 13 and above were asked to rearrange them so that the cartoon was in a meaningful sequence.

EXHIBIT 10. Exercise R62801 Stimulus




*Cartoon by Henry Syverson*

*Reprinted with permission from *THE SATURDAY EVENING POST*, No. 5, © March 9, 1968, p. 60, The Curtis Publishing Company.

Similar proportions of 13 and 17-year-olds as well as adults, 85%, 86% and 82%, respectively, chose the proper sequence. The Southeast and Black groups, although characteristically lower than other groups, attained an unusual level of success on this exercise: 13-year-olds from those two groups had a higher percentage of success than either 17-year-olds or young adults. Black 13-year-olds were considerably better with 74% correct, compared to 69% for 17-year-olds and only 62% for Black adults. Those percentages are far below the national level--from 10 to 20 percentage points lower--but the superiority of 13-year-olds among the Black population seems promising for the future.[7]

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[7]For additional data and discussions of exercises in this theme, please refer to *Report 02-R-06, Theme 6, Reading: Main Ideas and Organization*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973).

## Drawing Inferences--Theme 7

Readers of the exercises in this theme were required to draw inferences on the basis of information provided in various passages. Some of the exercises required respondents to use their own prior experiences in addition to the information and implications provided in the selections. In this theme, as in all the others, the relationships between various groups were similar to those noted in Chapter 1. For example, the highest percentage for 9-year-olds in the no high school group was below the lowest percentage for 9-year-olds from the post high school group; females were superior to males; White performance was better than Black.

The exercises vary from short, relatively easy selections to longer, more complex passages. The exercise presented in Exhibit 11 is one of the easier ones:

### EXHIBIT 11. Exercise R732, Theme 7

Christmas was only a few days away. The wind was strong and cold. The walks were covered with snow. The downtown streets were crowded with people. Their faces were hidden by many packages as they went in one store after another. They all tried to move faster as they looked at the clock.

When did the story probably happen?

- ○ November 28
- ○ December 1
- ● December 21
- ○ December 25
- ○ December 28

- ○ I don't know.

The next (Exhibit 12) is one of the most difficult:

### EXHIBIT 12. Exercise R755, Theme 7

Until about thirty years ago, the village of Nayon seems to have been a self-sufficient agricultural community with a mixture of native and sixteenth century Spanish customs. Lands were abandoned when too badly eroded. The balance between population and resources allowed a minimum subsistence. A few traders exchanged goods between Quito and the villages in the tropical barrancas, all within a radius of ten miles. Houses had dirt floors, thatched roofs, and pole walls that were sometimes plastered with mud. Guinea pigs ran freely about each house and were the main meat source. Most of the population spoke no Spanish. Men wore long hair and concerned themselves chiefly with farming.

The completion of the Guayaquil-Quito railway in 1908 brought the first real contacts with industrial civilization to the high inter-Andean valley. From this event gradually flowed not only technological changes, but new ideas and social institutions. Feudal social relationships no longer seemed right and immutable; medicine and public health improved; elementary education became more common; urban Quito began to expand; and finally--and perhaps least important so far--modern industries began to appear, although even now on a most modest scale.

In 1948-49, the date of our visit, only two men wore their hair long; and only two old-style houses remained. If guinea pigs were kept, they were penned; their flesh was now a luxury food, and beef the most common meat. Houses were of adobe or fired brick, usually with tile roofs, and often contained five or six rooms, some of which had plank or brick floors. Most of the population spoke Spanish. There was no resident priest, but an appointed government official and a policeman represented authority. A six-teacher school provided education. Clothing was becoming citified; for men it often included overalls for work and a tailored suite, white shirt, necktie, and felt hat for trips to Quito. Attendance at church was low and many festivals had been abandoned. Volleyball or soccer was played weekly in the plaza by young men who sometimes wore shorts, blazers, and berets. There were few shops, for most purchases were made in Quito, and from there came most of the food, so that there was a far more varied diet than twenty-five years ago. There were piped water and sporadic health services; in addition, most families patronized Quito doctors in emergencies.

The crops and their uses had undergone change. Maize, or Indian corn, was still the primary crop, but very little was harvested as grain. Almost all was sold in Quito as green corn to eat boiled on the cob, and a considerable amount of the corn eaten as grain in Nayon was imported. Beans, which do poorly here, were grown on a small scale for household consumption. Though some squash was eaten, most was exported. Sweet potatoes, tomatoes, cabbage, onions, peppers and, at lower elevations, sweet yucca and arrowroot were grown extensively for export; indeed, so export-minded was the community that it was almost impossible to buy locally grown produce in the village. People couldn't be bothered with retail sales."

*Ralph L. Beals, "The Village in an Industrial World," *Scientific Monthly*, 77, No. 2, August 1953, pp. 67-73. Reprinted by permission of the American Association for the Advancement of Science.

On the relatively easy exercise on Christmas shopping reproduced above--Exercise R73201--60% of the 9-year-olds and 83% of the 13-year-olds chose the correct alternative. Those percentages do not seem as large as one might hope they would be. But they are considerably larger than the percentages for the second exercise reproduced above. That exercise--R755--excerpted from *Scientific Monthly*, contained the following three questions:

75501

Why was there primitiveness and self-containment in Nayon before 1910?

- ○ Social mores
- ○ Cultural tradition
- ○ Biological instincts
- ● Geographical factors
- ○ Religious regulations
- ○ I don't know

75502

By 1948 the village of Nayon was

- ○ a self-sufficient village.
- ○ out of touch with the outside world.
- ● a small dependent portion of a larger economic unit.
- ○ a rapidly growing and sound social and cultural unit.
- ○ I don't know.

75503

Why was Nayon originally separated from its neighbors?

- ○ Rich arable land
- ○ Long meandering streams
- ○ Artificial political barriers
- ○ Broad stretches of arid desert
- ● Deep rugged gorges traversed by rock trails
- ○ I don't know.

About one in four 13-year-olds chose the most acceptable of the five foils for the first question, compared to 45% of the 17-year-olds and 46% of the adults. From 5% to 8% of the respondents at all three ages indicated that they did not know the answer.

On the second question, the percentages were 14% at age 13, 24% at age 17 and 29% at ages 26-35, with about 3% of each age marking "I don't know."

On the third question, 25% of the 13-year-olds, 29% of the 17-year-olds and 31% of the adults were correct. But large

percentages of respondents at each age level marked the "I don't know" response: 21% at age 13, 30% at age 17 and 31% at ages 26-35.

On each of those questions, the percentages for each group increased as the age increased, with few exceptions. One of the most obvious exceptions was among Blacks. Black adults had smaller percentages than Black 17-year-olds on all three of the questions. On part 2, Black 13-year-olds were equal to 17-year-olds and superior to adults; 12% of the 13 and 17-year-olds and only 6% of the adults were correct. Black 13-year-olds, therefore, were close to the national level, while Black adults were successful less than one fourth as often as White adults on that exercise.

The large number of respondents who indicated that they did not know the correct answer and who chose not even to guess is surely an indication of the difficulty of such a passage. The selection, however, is not unlike those found in some high school history and sociology texts. The "average" high school student, even the "average" adult was apparently unable to draw inferences from such a selection.

A less difficult narrative passage resulted in somewhat higher percentages of success for respondents. The following passage was administered to all four age levels:

> Skiing has recently become one of the more popular sports in the United States. Because of its popularity, thousands of winter vacationers are flying north rather than south. In many areas, reservations are required months ahead of time.
>
> I discovered the accommodation shortage through an unforunate experience. On a sunny Saturday morning I set out from Denver for the beckoning slopes of Aspen, Colorado. After passing signs for other ski areas, I finally reached my destination. Naturally I lost no time in heading for the nearest tow. After a stimulating afternoon of miscalculated stem turns I was famished. Well, one thing led to another and it must have been eight o'clock before I concerned myself with a bed for my bruised and aching bones.
>
> It took precisely one phone call to ascertain the lack of lodgings in the Aspen area. I had but one recourse. My auto and I started the treacherous jaunt over the pass and back towards Denver. Along the way, I went begging for a bed. Finally a jolly tavernkeeper took pity and for only thirty dollars a night allowed me the privilege of staying in a musty, dirty, bathless room above his tavern.

This passage was difficult for 9-year-olds as indicated by their relatively low percentages of success. Thirty-two percent of

them chose the correct foil to complete the statement: "The author's problem would have been avoided if he had...." Moreover, 21% of the 9-year-olds marked "I don't know." The percentages of success increased for older respondents: 77% for 13-year-olds, 91% for 17-year-olds and 93% for young adults.

Drawing inferences from Shakespeare's "Sonnet 29" was quite difficult for 13-year-olds--only 30% of whom chose the correct response--and of moderate difficulty for 17-year-olds--52% of whom chose the correct response.

At the easier end of the spectrum, a majority of 9 and 13-year-olds appeared to be capable of drawing inferences about the meaning of a nonsense word when used repeatedly in context. The following exercise--R71001--was given to 9-year-olds:

Most people have two cags. You use your cags to hold things when you eat or brush your teeth. Some people write with their left cag, and some people write with their right cag.

Cags are probably

- ○ eyes.
- ○ feet.
- ● hands.
- ○ pencils.
- ○ I don't know.

About three out of four of the 9-year-old students chose the correct response. (About 7% marked "pencils," 5% "eyes" and 8% "I don't know.") Nine-year-olds were even better on two similar exercises which used the words zup and mart. There, 83% chose the correct alternative. On those two exercises, 13-year-olds had 93% and 97% correct responses, indicating that by age 13, students seem quite capable of inferring the meaning of a word used repeatedly in context, but that a fair number of 9-year-olds have some difficulty.

The exercises in this and the following theme were designed to assess reader's skills in the two most complex and probably most difficult skills areas. The results show that although many students and adults do not draw inferences very well on certain types of selections, they can draw inferences about word meanings and concepts in passages that are not too complex. As the readability of the material became more difficult, the percentages of success decreased across all groups in the study.[8]

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[8]For a more detailed examination of the many exercises in this theme, read *Report 02-R-07, Theme 7, Reading: Drawing Inferences*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973).

## Critical Reading--Theme 8

Exercises in this theme assess people's ability to interpret signs, discover the mood and tone of a story or article, estimate the author's purpose and attitude and describe the devices by which a writer attracts the reader's attention.

Most of the exercises in this theme followed the usual patterns, a few did not. On one exercise--R81401--9-year-olds who were Black, male, from the Southeast or whose parents had no high school education had unusually high percentages of success in comparison with other groups of 9-year-olds (Exhibit 13).

EXHIBIT 13. Exercise R81401, Theme 8

Where would you probably see this sign?

- On a highway
- On a gymnasium floor
- At a racetrack for horses
- In a grocery store
- I don't know.

The exercise was a particularly difficult one for 9-year-olds, for the national percentage was only 23%. About 45% of the 13-year-olds, 76% of the 17-year-olds and 88% of the adults chose the right answer. The performance of Black respondents on this exercise is discussed in greater detail in Chapter 3.

Nine and 13-year-olds were asked to read the following short story and select the best statement of the mood from five alternatives.

> The wind whistled woefully as it wound its way through the nearly leafless trees. The pale yellow moon cast eerie shadows as it slipped in and out from behind the clouds like a blinking flashlight. Strange figures could be seen dashing and darting through the streets. Ghosts, goblins -- what could they be? What do they want? Whom have they come to haunt? Beware...

The mood or feeling of this story is

- ○ amusing.
- ● frightening.
- ○ gay.
- ○ ridiculous.
- ○ sad.
- ○ I don't know.

Most 9-year-olds did quite well--81% of them made the correct choice. Surprisingly, only 84% of the 13-year-olds chose the correct answer. Although this is only one exercise, it seems to imply that 13-year-olds are not much better at identifying the mood of a passage than are 9-year-olds.

Exercise R82701 required respondents from the upper three age levels to select the attitude of the speaker in the following poem:

The more I speak, more useless seems the effect.
My prayers can neither touch nor soften you.
You take the bit in your teeth like a horse untamed,
Fighting against the rein to have your way.
And yet how frail, for all your vehemence,
That science seems on which you do rely.
Simple self-will falls strengthless to the ground
When isolated from a mind that's sound.

Consider, if my warning you ignore,
How the successive and stupendous wave
of mounting agony breaks on your head.

Do though beware, look round, take cognizance,
Nor think self-will stronger than common sense.*

Which word BEST describes the attitude of the speaker?

- ● Exasperation
- ○ Fear
- ○ Indifference
- ○ Loyalty
- ○ Self-interest
- ○ I don't know.

*Aeschylus, *Prometheus Bound*, in *Eight Great Tragedies*, eds. Sylvan Barnet, Morton Berman and William Burto (New York: The New American Library, 1957), pp. 50-51. Reprinted by permission of the publisher.

An unimpressive 55% of the adults chose the right answer, along with only 30% of the 13-year-olds and 45% of the 17-year-olds. The word "exasperation" may have been difficult for some people and would therefore partially account for the relatively low achievement.

Respondents from those same age levels achieved higher percentages on the following similar exercise (R83901) that asked them to interpret the tone of a difficult passage from *Walden Two* by B. F. Skinner.

We can't be satisfied with a static culture. There's work to be done if we're to survive. To stand still would be to perish. The discrepancy between man's technical power and the wisdom with which he uses it has grown conspicuously wider year by year. We become aware of it when an atomic bomb blasts an open gulf, but the separation has gone on steadily for a long time. It's no solution to put the brakes on science until man's wisdom and responsibility catch up. As frightening as it may seem -- as mad as it may seem to the contemplative soul -- science must go on. We can't put our rockets and our atomic piles in museums like the locomotives in Erewhon. But we must build men up to the same level. We can't retreat, but we must straighten our lines. We must reinforce the weak sectors -- the behavioral and cultural sciences. We need a powerful science of behavior.*

The tone of the speaker is which of the following?

- ○ Cynical
- ● Earnest
- ○ Ironical
- ○ Sentimental
- ○ Witty
- ○ I don't know.

*Burrhus F. Skinner, *Walden Two* (New York: The Macmillan Company, 1948), pp. 290-291. Reprinted by permission of the publisher.

Thirty-one percent of the 13-year-olds, 56% of the 17-year-olds and 72% of the adults answered that exercise correctly.

Thirteen-year-olds might not have performed very well on that and other similar exercises because of the difficulty of the selections. Readability is usually a factor when exercises are used across age levels. Some exercises, therefore, were administered to only one age level. Exercise R82001--reproduced below--for example, was given only to 9-year-olds to assess their skills in determining the author's purpose.

Once there was a fish named Big Eyes who was tired of swimming. He wanted to get out of the water and walk like other animals do. So one day without telling anyone, he just jumped out of the water, put on his shoes, and took a long walk around the park.

What did the person who wrote this story want you to do when you read it?

- ○ Cry
- ○ Yell
- ● Laugh
- ○ Become angry
- ○ I don't know.

On that exercise, 84% of the respondents chose the correct alternative. (The next largest percentage, 7%, chose "Become angry.")

A number of other exercises in Theme 8 and in Theme 1 of the Literature assessment were designed to assess skills in

recognizing an author's intentions. The patterns of achievement in those exercises were typical of patterns in previous themes except for one noteworthy difference. On four of the exercises in this theme, 9-year-old students whose parents had acquired post high school education performed unusually well. This seems to further strengthen the evidence that parental education has a significant bearing upon student achievement, especially in the earlier years.[9]

## Reading Rate and Comprehension

Respondents were required to read two passages, the second more difficult than the first, and to answer five comprehension questions following each passage. The questions were multiple choice, designed to measure the reader's comprehension of details from the passage. The respondents did not see the questions until they completed the reading.

It is impossible to draw conclusions about differences in relative reading rates from age to age within the school-age populations in this study. Neither identical nor similar passages for rate and comprehension were used across age levels except at age 17 and at the young adult level. Moreover, the passages that were used represented varying readability levels. Thus, comments about reading rate must be confined to performance at each age level and only the 17-year-olds and adults can be usefully compared.

The results show that more than half (54%) of the 9-year-olds read the first passage, which had a readability level of about sixth grade, at rates between 100 and 199 words per minute. Nearly half of those students read between 100 and 125 words per minute. Rates ranged from 0 to 570 words per minute, with a median rate of 117 words per minute. Less than 5% of the 9-year-olds read that passage above 250 words per minute.

On the more difficult second passage, which has a readability level of about eleventh grade, rates ranged from 0 to 1,302 words per minute with a median rate of 123 words per minute. The evidence indicates that most of the extremely fast readers in the group were not comprehending and were most likely skimming and skipping parts that were too difficult to comprehend. About half

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[9]For additional information and a description of all of the exercises in Theme 8, refer to *Report 02-R-08, Theme 8, Reading: Critical Reading*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973).

of the students again read between 100 and 199 words per minute, with about 19% reading from 100 to 125 words per minute. Flexibility of rate according to the purpose and type of material was not in evidence among 9-year-olds.

Flexibility of rate was not very evident in the results for 13-year-olds either. Rates ranged from 0 to 701 on the first passage which had readability level of about fifth grade and from 0 to 991 on the more difficult second passage whose readability level was about eleventh grade. The median rate, however, decreased from 173 on passage 1 to 165 on passage 2. The majority of the 13-year-olds read both passages at rates between 125 and 225 words per minute. Slightly more students read faster than 300 words per minute on the second passage (5.4%) than read that fast on the first passage (3.8%). The percentage of students who read less than 100 words per minute increased from 10% on passage 1 to 11% on passage 2; however, only 7% of the 13-year-olds read both passages at less than 100 words per minute. Some students probably slowed down for the more difficult second passage while others did not.

Seventeen-year-olds and young adults were very much alike in their reading rates, except that 17-year-olds had a wider range of rates and slightly higher median rates for the two passages. Adult rates ranged from 0 to 536 words per minute on passage 1 and up to 859 words per minute on passage 2 compared to the maximum rates of 1,039 and 1,771 for 17-year-olds. Median rates were 195 words per minute on both passages at age 17 and 188 and 186 for the first and second passages at the adult level.

Sixty percent of both the 17-year-olds and the adults read the first passage between 125 and 225 words per minute. Slightly smaller percentages read the second passage within the same rate parameters. From 16% to 18% of the 17-year-olds and adults read both passages between 175 and 200 words per minute. It is noteworthy that although passage 1 had a readability of about tenth grade level and passage 2 of about mid to upper college level, the percentages of both 17-year-olds and young adults who read within various rate categories did not vary much at all.

## Comprehension

Comprehension of details from the passages varied from one age level to another. About 81% of the 9-year-olds who had read passage 1 within the moderate rates of 100-199 words per minute had acceptable comprehension scores. (Acceptable comprehension was defined as having four or five correct answers out of the five multiple-choice questions on each passage.) Only 37% who read the more difficult second passage between 100 and 199 words per minute had acceptable comprehension scores. These figures--

81% and 37%--were the highest percentages for comprehension within any of the four rate categories on each passage for 9-year-olds. Thus, though 9-year-olds may not have read very rapidly, they seem to have read comparatively well.

In contrast, the highest percentages of acceptable comprehension scores among 13-year-olds were 52% on the first passage and 39% on the more difficult second passage, both occurring within the 200-299 words per minute category.

Among 17-year-olds, similar percentages of respondents who had read in the three rate categories above 100 words per minute had acceptable comprehension. On the first passage the percentages were as follows: 67% in the 100-199 category, 69% in the 200-299 category and 64% in the 300 or more category. On the second passage from 30% to 35% within each of those three rate categories attained acceptable comprehension scores.

Adults were slightly better. Seventy percent of the adults who had read the first passage at rates between 100 and 199 words per minute had acceptable comprehension. A slightly higher 74% attained acceptable comprehension scores in the 200-299 category, and 58% did so in the 300 or more category. On passage 2, the comprehension percentages were 42%, 50% and 43% for each of the rate categories above 100 words per minute.

The data on comprehension within rate categories thus indicate that as passage difficulty increased, comprehension generally decreased for all age levels. In addition, the evidence suggests that, above 100 words per minute, as rate increased, comprehension decreased.

## Group Results

As in all other skills areas, Southeastern respondents were again below the national level. Except at age 17, the largest percentages of respondents who read either passage at less than 100 words per minute were from the Southeast. The West had the largest percentages of readers in the two higher rate categories at all ages. For example, 43% of the Western 17-year-olds read the first passage within the 200-299 words per minute category, compared to 39% for Central, 35% for Northeast and 34% for Southeast. Similarly, 55% of the adults from the West read at 200 words per minute or faster--15 percentage points higher than the next highest region. In contrast, however, Western 17-year-olds had the largest percentage of respondents who read both passages at rates below 100 words per minute.

The comprehension of respondents from the Southeast in the 1970-71 assessment was generally the lowest of the four regions.

The Northeast generally contained the largest percentages of readers who had acceptable comprehension scores in the moderate rate categories. Among 9-year-olds, for instance, the percentage of students who had read passage 2 at rates between 200-299 words per minute was twice the percentage of those in the Southeast who had done so. When results for both passages are combined, the West, at all ages, generally showed the highest percentages of readers who correctly answered four or more of the comprehension questions on each passage.

In general, American females read faster than males, but the comprehension of males on questions requiring detailed recall was usually equal to or better than females. Chapter 4, which describes the differences in reading performance between males and females, contains additional details on rate and comprehension.

This study also shows that at all ages higher percentages of Blacks compared to the nation read slower than 100 words per minute. On passage 1, for example, 12% of the Black 17-year-olds read at less than 100 words per minute compared to only 2% of the White 17-year-olds. Passage 2 showed nearly identical results--10% and 3%. Among adults, nearly one out of every four Blacks read both passages at less than 100 words per minute in contrast to only 4% of the White adult population. Blacks not only read slower, but their comprehension scores were generally far lower than the national scores. One bright spot appeared to exist among Blacks: a larger percentage of Black than White 9-year-olds read the second passage at 300 or more words per minute. However, only 5% of those Black students in that highest rate category attained acceptable comprehension scores in contrast to 14% for White 9-year-olds who had completed the passage that rapidly.

Rate and comprehension results for parental education groups are similar to the results in all skills areas: respondents whose parents had more than a high school education read faster and better than other respondents at all age levels. Conversely, with few exceptions, respondents from homes with the least education generally read slower and had poorer comprehension. As parental education increased, therefore, so did the percentage for those who read at moderate and high reading rates and who had "good" comprehension within the rate categories.

Among the school-age populations, patterns of rate and comprehension among community groups were similar to patterns within the themes previously reported: students in the affluent suburbs read faster and better than others, while students in rural and inner city areas generally read slower and comprehended less than others. Among 13-year-olds who read either passage at 200 or more words per minute, for example, the percentages for the

affluent suburb group were nearly twice those for either rural or inner city groups.

Among adults or out-of-school 17-year-olds, the big city group had the lowest reading rates while big city fringes had the highest. Big city fringe and medium city groups appear to have the best comprehension within rate, while the big city and small place respondents are on the lower end of the scale.

## Slow Readers

Defined as those who read either passage at less than 50 words per minute, slow readers were distributed quite evently throughout the four geographical regions of the country at ages 9 and 13. There were no slow readers identified among the 17-year-old population in the Central region; however, that region did contain the largest percentage of adult slow readers.

Among these very slow readers are found more males than females and a larger percentage of Blacks than Whites.

There is no obvious pattern of parental education among school-age slow readers, but 8 of 11 adult slow readers had parents with less than eighth grade educations.

## Exceptionally Fast Readers

Anyone at any age who read either passage in excess of 750 words per minute was labeled an exceptionally fast reader. Out of 7,850 respondents at all four age levels, only 17 readers exceeded 750 words per minute on either passage; only two did so on passage 1.

The greatest number of fast readers were found among 17-year-olds (seven), the least among 13-year-olds. More than half of the rapid readers came from the Western region, the least from the Southeast. There were more males than females and a slightly larger percentage of Blacks than Whites among the fast readers.

Comprehension among these individuals varied. Some rapid readers attained acceptable comprehension on at least one of the two passages; many did not. Moreover, these exceptionally fast readers were not flexible readers--more people read the more difficult second passage above 750 words per minute than read passage 1 that rapidly at all age levels.

Teachers and advocates of speed reading may be disappointed to learn that no one in this entire study read above 750 words

per minute on both passages and had acceptable comprehension scores.[10]

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[10]For additional information on rate and comprehension see *Report 02-R-09, Reading: Reading Rate and Comprehension*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1972).

## CHAPTER 3

## BLACK INEQUALITY

Poor performance by Blacks on the national Reading assessment is a harsh reality, a reality that reflects the position of Blacks in American society in 1970-71. In no skills area (theme) assessed in this study did Blacks approach the national level. And on only 16 of the more than 700 exercises did Blacks read at or slightly above the national level.[1]

That does not mean that the reading skills of all Blacks are inferior to all Whites or that an individual Black person can be expected to read less well than an individual White person from a comparable background. It does mean, however, that Whites as a group consistently perform better than Blacks as a group on various measures of a variety of reading skills.

The majority of those 16 exercises on which Blacks and Whites read at about the same proficiency were at the 9-year-old level. Among Blacks, 9-year-olds read comparatively well on seven exercises, 13-year-olds read well on five exercises and 17-year-olds read well on four. In only one exercise did Black young adults come close to the national level, and in no exercise did they equal or surpass it.

For all age groups, the skills area in which Blacks read best was main ideas and organization (Theme 6). Six of the 16 exercises came from that theme. Three exercises came from understanding words and word relationships (Theme 1), three from graphic materials (Theme 2), two from critical reading (Theme 8) and one each from gleaning significant facts from passages (Theme 5) and drawing inferences (Theme 7). None came from the skills areas of following directions (Theme 3) or using reference materials (Theme 4).

In 12 of the 16 exercises, the percentage of success for the nation was very low--28% or less. On those 12 exercises, chance guessing alone could account for many of the successful answers.

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[1]See Appendix B for the total number of exercises in each theme at each age level.

One cannot tell, therefore, whether guessing or understanding accounts for the level of success of Blacks or Whites on those exercises.

On only one of the 16 exercises--R21402--was there a very high percentage (98%) of success for the nation; both Blacks and Whites did well. That was one of the Theme 2 map-reading exercises for 17-year-olds. However, Black 9-year-olds and 13-year-olds did not do as well as White 9 and 13-year-olds on that true/false exercise.

On each of the three remaining exercises--R53004, U21601 and U74301--there was a moderate percentage of success for the nation as a whole, and Blacks performed about as well as Whites. Seventeen-year-old Blacks did well on Exercise R53004 which required respondents to recall three details from a short passage: the day, the month and the place where the story occurred. It is interesting that the story takes place in a city; it is a bleak setting; and the boy in the story has been contemplating running away from school. Black 13-year-olds and young adults did not fare as well as the 17-year-olds in comparison to Whites.

Nearly 53% of the nation's 13-year-olds were able to select the correct information from a chart from the telephone directory in Exercise U21601. The 13-year-old Black students did about as well as White students on this Theme 2 exercise. On this exercise, however, 17-year-old and young adult Blacks performed considerably below the national level.

On Exercise U74301 which required inferences to be drawn from a poem, Black 17-year-olds did as well as Whites. On that exercise, 39% of the population chose the correct response. However, on that same exercise, Black 13-year-olds did not do nearly as well as White 13-year-olds.

Each of those three exercises was administered at more than one age level--the first two at the 13, 17 and young adult levels and the third at the 13 and 17-year-old levels. It is important to observe that Blacks performed about as well as Whites at only one age level on each of those exercises. For example, although Black 17-year-olds performed as well as Whites on the exercise requiring the recall of three details, Black 13-year-olds and young adults did not do as well as Whites. A relatively good--or poor--reading performance by Blacks on a particular exercise, therefore, does not appear to be primarily a characteristic of race, since "good" performance by Blacks on an exercise was not consistent across age levels. Unfortunately, it is not readily obvious why Blacks performed relatively well on those few exercises.

The data from one additional exercise--R81401--are also difficult to analyze:

Where would you probably see this sign?

- ● On a highway
- ○ On a gymnasium floor
- ○ At a racetrack for horses
- ○ In a grocery store
- ○ I don't know.

The exercise required a respondent to comprehend the metaphorical language of both horsepower and horse sense, neither of which have any concrete relationship with animals. Then the reader must understand the denotative meaning of fatal and conclude that senseless use of automotive power can kill.

Older students and adults seemed to understand the figurative language and the inferences involved. Not very many 9-year-olds understood that, however, since only 23% of them answered that such a sign would probably be found on a highway. Approximately 64% of the 9-year-olds chose "at a racetrack for horses." Interestingly, more White than Black 9-year-olds chose that incorrect foil. What made that incorrect foil more attractive for Whites and what made the correct foil more appealing to Blacks at age 9 is a difficult question. Furthermore, this pattern did not recur in 13, 17 or young adult groups. At those ages, Black respondents performed characteristically below the national level.

Looking for reasons why a majority of Black students chose a particular response to an individual exercise might be valuable for a few specific exercises. But it is futile to attempt that with numerous exercises, especially if each exercise has a different structure, a different kind of stem and measures a different skill. Such an investigation would be valuable if a fairly consistent response pattern from a particular group, in this case Blacks, could be ascertained. But no consistent type of response from Blacks is apparent, except for the consistency of being below the national level on most exercises.

It is more valuable to speculate about reasons for Blacks generally performing below the national level. No one factor

stands out, and numerous factors remain obscure, but a number of correlates are available from the assessment. Most of the following demographic information was based on or is in accord with the findings of the 1970 national census.

The data described in Chapter 1 of this report suggest that there is a relationship between low income and low reading performance. Only about 7% of the total sample in this study came from inner city schools where high proportions of the residents were on welfare or not regularly employed. But 44% of the Black 9-year-olds and only 4% of all White 9-year-olds came from inner city schools. Thirty-one percent of the Black 13-year-olds and 30% of the Black 17-year-olds came from the inner city, in contrast to 5% of Whites at each of those age levels. Proportionately more Black than White students, therefore, come from inner city locations which have recorded the lowest overall reading levels of any type of community group.

The assessment data also suggest that parental education has some correlation with reading proficiency, that respondents from families with little education generally had a low level of success on assessment exercises. When we examine the percentages of Blacks in the nation who came from families with comparatively little formal education, we can see another aspect of American society. Larger percentages of Blacks compared to Whites have parents with lower levels of formal education. At the 9-year-old level, the percentages of Blacks and Whites whose parents had no high school, some high school or who had graduated from high school were comparable, but 34% of the Whites and only 19% of the Blacks were from families with post high school education. For 13-year-olds and 17-year-olds, larger percentages of Blacks were from families with little education, while larger percentages of Whites were from families with post high school education. In fact proportionally twice as many 13-year-old Whites as Blacks were from families where at least one parent had some post high school education. In the 17-year-old bracket, the percentage of Whites in the post high school group was more than twice as great as that for Blacks, and for adults that difference was three times as great. The following table shows the percentages of Blacks and Whites in each parental education category at each age level. An unequally large proportion of Blacks, therefore, were from families with below average educational backgrounds.

(It is an interesting sidelight to note in the following chart that not only were the proportions of Blacks larger in the lower parental education categories, but larger percentages of Blacks either did not know or chose not to indicate the level of education of either of their parents.)

TABLE 1. Percentages of the Black and White Population in Each Parental Education Category

| Age | No Hi Sch. | Some Hi Sch. | Grad. Hi Sch. | Post Hi Sch. |
|---|---|---|---|---|
| 9-year-olds | | | | |
| Blacks | 7% | 7% | 23% | 19% |
| Whites | 6 | 5 | 23 | 34 |
| 13-year-olds | | | | |
| Blacks | 11 | 16 | 27 | 20 |
| Whites | 7 | 9 | 32 | 40 |
| 17-year-olds | | | | |
| Blacks | 17 | 24 | 26 | 18 |
| Whites | 8 | 13 | 32 | 42 |
| Young adults | | | | |
| Blacks | 35 | 28 | 22 | 12 |
| Whites | 21 | 19 | 30 | 29 |

Another area of disproportionality was the Southeast. In 1970-71 the population of the Southeast in general had a lower level of reading success than the rest of the nation, and a larger percentage of Blacks compared to Whites in the assessment came from that region of the country. Proportionally, about twice as many Blacks as Whites were from the Southeast, as follows (Table 2):

TABLE 2. Percentages of Blacks and Whites from the Southeast in the Reading Assessment

| | 9-Yr-Olds | 13-Yr-Olds | 17-Yr-Olds | Adults |
|---|---|---|---|---|
| Blacks | 44% | 40% | 44% | 37% |
| Whites | 22 | 23 | 23 | 22 |

This is not to suggest that the Southeast ranks lower in reading success than other regions of the United States because it has large numbers of Blacks who do not read as well as Whites. That might be possible if there had been equal numbers of Blacks and Whites in the Southeast. But there are far more Whites than Blacks in the Southeast as well as in the whole nation. Moreover, the data indicate that if only the White population in the nation was examined, Whites in the Southeast would be below Whites in the other three regions of the country.

The evidence is certainly circular. Large proportions of low income families live in inner city areas of the country; large numbers of Blacks are members of low income families and live in the inner city. Many low income families have little formal education; a large number of Blacks are from families with little formal education. How much of the lower reading performance of Blacks is due to the type of community in which they reside, or to the amount of education their parents have had, or to the kind of school they go to or to racial attitudes and behaviors? The figures do not say. It is also not clear if indeed there is a cause-effect relationship between or among those variables. More detailed, controlled studies should be conducted to investigate those and several other factors in greater detail.

Preliminary data released early in 1972 indicated that Black youngsters read faster than Whites in the exercises that assessed reading rate and general comprehension. That finding was true in some instances only if by "reading" one means "getting through the material whether or not it is understood." The figures show that among 9-year-olds, a larger percentage of Blacks than Whites "read" the more difficult second passage (readability of about high school level) at rates of 200 or more words per minute. The comprehension of Black 9-year-olds who read at those higher rates was not as good as it was for Whites at those rates. That is, a larger percentage of Whites than Blacks who read the second passage at 200 or more words per minute answered four or all of the five comprehension questions correctly. At all other age levels, larger percentages of Whites compared to Blacks read at the higher rates and scored higher on the comprehension exercises which followed the reading.

In addition, larger percentages of Blacks than Whites were labeled as very slow readers--those who read either of the two passages at 50 words per minute or slower. Furthermore, the percentage of Black slow readers in relation to Whites increased with age. Among exceptionally fast readers--those who read either passage faster than 750 words per minute--the percentage of Blacks was slightly greater than that of Whites. Only a negligible 0.2% of all the White readers qualified as exceptionally fast readers, while an almost equally small 0.3% of the

Blacks qualified.[2] However, no White or Black respondent who read at an accelerated rate on either passage correctly answered four or more of the five comprehension questions following both passages. Within reasonable reading rates, therefore, Whites generally read faster than Blacks and with better comprehension.

In spite of the below average reading performance of Blacks, there is some evidence to suggest that school-age Blacks were relatively better readers in relation to Whites than Black adults were. This finding is not conclusive, however, because not very many of the same exercises were administered to all age levels, and direct comparisons among racial groups at various ages have not been reported. But a casual examination of the results show that the difference of Black adults from the national median was greater than the difference for school-age Blacks. This does not imply that Black adults did not read as well as younger Blacks. But in relation to Whites at the same age level, Black adults fared less well than younger Blacks. Additional evidence for this position is found in the parental education categories. They show that among 9-year-olds, the percentages of Blacks and Whites whose parents had no high school, some high school and had graduated from high school were comparable, while at the older age levels Whites had generally better educated parents.

Could it be that the schools really are making a difference? Are younger Blacks getting better educations than their parents--educations both in and outside of schools? Have desegregation decisions and aid to schools in low income areas made some difference for the students in those areas--differences which Black adults did not benefit from? The 1970-71 National Assessment data do not indicate any answers, unfortunately. These remain important questions that deserve further consideration.

For the present, we can say only that in general Blacks have greater deficiencies in reading skills than do Whites, that students in inner city areas have greater deficiences in reading skills than people in other types of communities, that people whose parents have little formal education have greater deficiencies in reading than do those whose parents have some education beyond high school. According to the reading experts whose views are presented in Chapter 5, the results of the National Assessment of Reading indicate that other teaching strategies and materials need to be employed with minority students, that instruction needs to be more appropriate to the needs, backgrounds and interests of various groups and that greater effort should be

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[2]The actual figures are 13 out of 6,460 Whites and four out of 1,233 Blacks.

exerted to determine the influence of teacher attitudes and competence on the reading performance of minority students.

## CHAPTER 4

## JOHNNY READS, BUT MARY READS BETTER . . . USUALLY

Almost every research study that compares the reading competence of boys and girls has noted that girls generally read better than boys. This assessment of the American population of 9, 13 and 17-year-olds supports those findings conclusively. At all three school-age levels girls read better than boys, with only a few exceptions. Among young adults, however, American males read as well as females. On only a few exercises did males at all four age levels read considerably better than females.

Females not only surpassed males in most reading skills, they generally also read faster. Among 9 and 13-year-olds, more girls than boys read two assigned passages in the Reading assessment at rates of 200 or more words per minute. Among 17-year-olds and adults, nearly equal percentages of males and females read both passages in excess of 200 words a minute.[1]

If females had the lead in the rate categories, males appeared to have better recall of details. For example, although 42% of the girls at age 17 read the first passage at 200-299 words per minute compared to only 34% of the boys, 78% of the boys and only 62% of the girls who had read the passage at 200-299 words per minute answered four or five out of the five comprehension questions correctly after reading the passage. Those comprehension questions were almost all recall of details.

Table 3 shows the percentages of males and females who had "good" (i.e., four or more correct) comprehension after reading each passage. Table 4 shows the percentages of males and females when the results for both passages are combined.

As the following tables show, males did as well as or better than females in more than two thirds of the rate categories when each of the passages is examined separately. When examined

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[1]See *Report 02-R-09, Reading: Reading Rate and Comprehension,* 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1972).

TABLE 3. Percentages of Males and Females with Four or More Correct Responses within Each Rate (Words Per Minute) Category

| Age | Sex | Percent by Rate Category | | | | All Rate Categories Combined |
|---|---|---|---|---|---|---|
| | | <100 | 100-199 | 200-299 | >300 | |
| | | | Passage 1 | | | |
| 9 | M | 60% | 79% | 68% | 49% | 70% |
| | F | 65 | 83 | 79 | 84 | 77 |
| 13 | M | 22* | 40* | 61* | 46 | 43* |
| | F | 12 | 35 | 45 | 49 | 37 |
| 17 | M | 54* | 69* | 78* | 65* | 71* |
| | F | 45 | 63 | 62 | 62 | 62 |
| Ad | M | 32 | 75* | 79* | 52 | 71* |
| | F | 54 | 66 | 70 | 64 | 67 |
| | | | Passage 2 | | | |
| 9 | M | 32* | 40* | 26* | 5 | 34* |
| | F | 24 | 34 | 20 | 18 | 29 |
| 13 | M | 30* | 38* | 43* | 25* | 38* |
| | F | 22 | 33 | 36 | 26 | 32 |
| 17 | M | 13 | 30* | 35* | 29 | 30* |
| | F | 29 | 30 | 36 | 33 | 32 |
| Ad | M | 16 | 44* | 51* | 56* | 45* |
| | F | 35 | 40 | 49 | 27 | 42 |

*Indicates where males are about the same as or better than females in recall of details.

together, males equaled or outclassed the girls in recall of details in more than 80% of the categories.

Male superiority, however, ends there. Out of hundreds of exercises, males surpassed females in only 22 of them. Eight of those exercises called for the reading of signs, charts, graphs, maps, etc. (Theme 2); five exercises involved identifying and

TABLE 4. Percentages of Males and Females with Four or More Correct Responses on Both Passages Who Read Both Passages within the Same Rate (Words Per Minute) Category

| Age | Sex | Percent by Rate Category | | | | All Rate Categories Combined |
|---|---|---|---|---|---|---|
| | | <100 | 100-199 | 200-299 | >300 | |
| 9 | M | 21%* | 48%* | 57%* | 17% | 33%* |
| | F | 15 | 36 | 27 | 53 | 28 |
| 13 | M | 15* | 19* | 31* | 17* | 20* |
| | F | 4 | 17 | 20 | 17 | 16 |
| 17 | M | 13* | 21* | 36* | 26 | 26* |
| | F | 6 | 21 | 28 | 29 | 25 |
| Ad | M | 6 | 38* | 46* | 26* | 38* |
| | F | 36 | 33 | 47 | 21 | 35 |

*Indicates where males are about the same as or better than females in recall of details.

recalling significant facts from a passage (Theme 5); four dealt with drawing inferences (Theme 7); two were concerned with organization (Theme 6); and one exercise was from each of three skill areas: understanding and following written directions (Theme 3), using reference materials (Theme 4) and critical reading (Theme 8). On no exercise from Theme 1 dealing with vocabulary did males at any age level read better than females. Therefore, although school-age males were generally below females in all reading skills, their weakest skills area in relation to females appears to be vocabulary, and their strongest areas seem to be interpreting graphic materials, extracting and recalling details and drawing inferences.

In the preceding chapter we noted that Blacks read as well as Whites on 16 exercises but that on only one of those exercises did Blacks do well at more than one age level on any specific exercise. For example, if Black 17-year-olds read as well as White 17-year-olds on an exercise, Black 13-year-olds or adults usually did not read as well as Whites from comparable age levels on the same exercise. An examination of differences in the sex category, however, reveals that when males read better than females, they often did so at more than one age level. In

addition, when males read better than females at only one of the four age levels, they usually read at least as well as females at one or more of the other age levels on the same exercise. For example, 17-year-old males were better than females in indicating which of four street signs told where a person should ride a bicycle (R20501), and both 9 and 13-year-old boys did as well as girls on that exercise. Similarly, on an unreleased exercise requiring respondents to interpret symbols on a map, males were superior at the 17-year-old and adult levels and about the same as females at the 13-year-old level. While we cannot say that the differences between Black and White reading success are due to racial differences, it does appear that differences in reading performance of males and females really are related to sex differences because they occur across age levels.

Those 22 exercises on which boys read better than girls were not evenly distributed across age levels, however. The fewest exercises for an age group occurred at the 9-year-old level. The largest number of exercises occurred at the young adult level. The following table indicates the number of exercises within each theme at each age level.

TABLE 5. Number of Exercises Where Males Performed Better than Females

| Age | Themes | | | | | | | | Totals |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| 9 | | 1 | | | 1 | 1 | | 1 | 4 |
| 13 | | | | | 1 | 1 | 3 | 1 | 6 |
| 17 | | 6 | | | 1 | | 1 | 1 | 9 |
| Adult | | 4 | 1 | 1 | 4 | | 2 | 1 | 13 |

The reader should be aware that vertical totals in the above table do not represent the number of different exercises for each theme. For example, 3 of the 11 notations under Theme 2 where males read better than females were the same exercise administered at the 17-year-old and young adult levels. Similarly, the notations under Theme 8 represent the same exercise; on that one exercise, males at every age level did better than females.

There are certain characteristics in those 22 exercises that are worth noting. Most of them involve reading signs, forms and charts or are concerned with male-oriented activities. Males, for example, did best on Theme 2 which involved reading signs, charts and forms.[2] On those kinds of exercises males usually read better than or as well as females. But males did not surpass females on every exercise of that type. For example, Exercise R214--a map-reading exercise--had five parts. Girls read better than boys on part 1 and part 3 at both the 9 and the 13-year-old levels; boys and girls were about equal at those age levels on parts 2, 4 and 5. Male 17-year-olds were better on part 5, but were equal to females on the other four parts. Nearly equal percentages of males and females had all five parts correct. Thus, one can point out that more male than female 17-year-olds responded correctly to one part of a map-reading exercise, but one cannot say that males were generally better map-readers than females. The same is true of the ability of males to read such things as street signs, charts, cereal boxes or traffic tickets. Nevertheless, when males did read better than females it was usually on that type of material.

Male success on one particular exercise (R23602) seems to be due partly to their male-oriented experience. The exercise required the respondents to identify two different amounts of liability coverage noted on an automobile insurance policy. Male 13-year-olds, 17-year-olds and adults answered the first part as well as females did. The question was asked directly: "What is the maximum amount for which this policy covers medical bills?" The answer--$1,000.00--was listed on the facsimile of the policy. But on the second question--"What is the maximum amount this policy would pay in case you injured another person?"--the answer was not as obvious. There was no category that said "In Case You Injure Another Person." The reader needed to know that the proper heading for that category was "Bodily Injury Liability." While 84% of the 13-year-olds had answered the first question correctly, only 8% of them did so on the second question. On the second question the national percentage increased from 8% for 13-year-olds to 19% for 17-year-olds and 43% for adults. As the national percentage increased, so did the relative performance of males. Among the 13-year-olds, boys did about as well as girls; at age 17 boys were better than girls; and at the young adult level, men were clearly superior on this exercise. Greater male experience--especially adult males--with automobile insurance forms of this kind probably accounts for some of their impressive success on this exercise.

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[2]See *Report 02-R-02, Theme 2, Reading: Graphic Materials*, 1970-71 National Assessment of Reading (Washington, DC: Government Printing Office, 1973).

A number of other exercises on which males did notably well also dealt with what appear to be male-oriented activities: driving a sports car, hunting and fishing and reading a newspaper advertisement for a job. Although 9-year-old girls did better than boys in identifying reasons why a sports car can turn corners easier than a passenger car (R50201), males were significantly better at the other three age levels. Also, in responding to the sigh--HORSEPOWER without HORSE SENSE is FATAL (R81401)--described in the previous chapter, males were considerably better than females at all four age levels.

Two unreleased exercises(U52901 and U52902) asked the respondent to interpret a list of regulations for fishing in a particular state. On one part, adult men read better than women, and boys read as well as girls at ages 13 and 17. On the second part of the exercise, females were better at age 13, males and females were similar at age 17 and adult males did better than adult females. One might suspect that men would do better than women and better than younger males because of their closer interest in hunting and fishing activities. However, only 47% of the 13-year-olds and adults in the nation responded correctly to that part of the exercise while 56% of the 17-year-olds did so. Since 17-year-olds were not better than adults on the first part of that exercise, it seems impossible to suggest reasons for their superiority on that point.

Familiarity with content may not in itself account for males doing better than females on certain exercises. One unreleased exercise (U53606) concerned a female-oriented job. On that exercise 13 and 17-year-old girls were better than boys on detail questions concerning the name of the company, job qualifications and salary. On those same details, adult males did about as well as females. But on one question which asked how to apply for the job, 13 and 17-year-old boys did about as well as girls, and men did better than women. Perhaps it was not familiarity with the content as much as it was familiarity with the procedures for applying for a job that enabled males to do so well on this exercise. As with many other findings in this study, more exact explanations are not readily available.

These examples of male superiority obviously do not suggest that school-age males <u>generally</u> read as well as or better than females. As indicated, the instances where boys were clearly superior are few indeed. Girls have always been better readers than boys during the school years and probably will continue to be so.

Reasons for female superiority have been posited and described in numerous reports and articles and need not be repeated here. One additional speculation might be offered here, though, regarding the absence of female reading superiority at

the adult level. Adult women generally did not perform significantly better than men on the Reading exercises. There are no doubt numerous reasons why women lose their reading advantage after school, among which are probably the factors of interest, male-oriented or female-oriented reading materials and sex-bias in jobs and other activities. Moreover, since the majority of higher-level jobs--where reading is an important and frequently used skill--belong to men, women generally do not have the opportunity to employ reading skills that men do. The need for females to read decreases while it increases for males. With the advent and growth of women's liberation movements, however, more and more females are becoming less content with traditional roles. The expectations and achievements of women have been changing. The future assessments of reading may find that the superiority women have over men in reading during the school years may very well continue throughout the adult years.

# CHAPTER 5

## SEEKING SOLUTIONS

On September 14 and 15, 1973, six nationally recognized consultants in reading were invited to join the writer and three members of the National Assessment staff in Denver to discuss the findings presented in the preceding pages. The panel was asked to focus upon the implications of these findings for reading specialists, teachers, teacher educators, politicians and school administrators. The discussion was lively and informative, but much too long to present in detail in this report. Accordingly, we have summarized some of the highlights of the discussion in this chapter. It is our hope that this summary might suggest how a group of reading specialists reacts to National Assessment reading data, and might also encourage the reader to formulate his or her own hypotheses about the implications of these results.

The views expressed by the panelists are entirely their own. Though National Assessment provided the forum for the expression of these views, it does not endorse them in any way. The assessment's responsibility is to gather data and encourage others to interpret and apply it.

The participants in the conference were:

### Consultants

Ms. Mary Ann Baird
State Reading Supervisor
Mississippi Dept. of Education
Jackson, Mississippi

Dr. Colin Dunkeld
Associate Professor of Education
Portland State University
Portland, Oregon

Dr. Olive Niles
Reading Consultant
Connecticut Dept. of Education
Hartford, Connecticut

Dr. George O. Phillips, Sr.
Professor of Education
Queens College
City University of New York
Flushing, New York

Dr. Harold Herber
Professor of Education
Syracuse University
Syracuse, New York

Dr. David J. Yarington
Chairman, Dept. of Education
Aquinas College
Grand Rapids, Michigan

## NAEP Staff

Dr. Rexford Brown
Utilization/Applications Dept.

Dr. Susan Sherman
Research and Analysis Dept.

Mr. Scott Newcomb
Exercise Development Dept.

## Writer and Symposium Moderator

Dr. Donald R. Gallo
Professor of English
Central Connecticut State College
New Britain, Connecticut

### Reading Achievement of Black Americans

The panel spent several hours discussing the achievement of Black Americans on reading tests in general and on this assessment in particular. George Phillips, a distinguished Black educator, expressed concern that this report did not sufficiently emphasize the exercises--admittedly few--upon which Blacks performed as well as or better than Whites. "We have to give credit where credit is due," he said, "regardless of how small the credit is. Because that's what has been killing these minority groups all the time: too much emphasis on their failures, and not enough on their successes."

David Yarington supported this point and went on to suggest that failure is generally laid on the wrong doorstep: "This research report seems to me to be doing the same thing that all studies have done for years," he said, "and that is blame failure on kids. All the way through, this study asks, 'Why do these kids do poorly? Why do these kids do so and so?' And it seems to me that the one thing that all these poor readers have in common--Black kids in particular--is that they have not been taught to read. I see it as the failure of schools and teachers to teach reading."

### Implications for Teachers

What is to be done to insure that children are taught to read? The panelists agreed that solutions are difficult to come by. Olive Niles suggested the complexity of the problem when she put it in a larger social context: "I can't help feeling that the new federal Right to Read thrust theoretically is closer to what needs to be done than we have ever been before. Right to Read is saying that it isn't entirely what the individual teacher does in the classroom. We have tended to think that if we got things

going right in the classroom everything else would be fine. But the individual teacher in a particular classroom can't do the job. It is what is going on in the whole system that matters, and the whole system means more than the school--it means the entire community. Until the whole system gets changed, not much is going to happen. Theoretically, I accept that view. Now how you go about changing a whole system is something else again."

By assenting to this view, the panelists did not imply that there was nothing the classroom teacher could do; all recognized the considerable influence of the reading teacher. David Yarington even expressed some fear that a teacher's misinterpretation of the Reading assessment results could have a deleterious effect upon pupil performance: "These data say that Black kids perform less well than White kids, that the kids in the Southeast don't perform as well as kids in other parts of the country, and so on. However, I would caution classroom teachers who read this report to beware of creating a self-fulfilling prophecy, for their expectations of their students can certainly influence the way the students perform. I would caution them not to develop expectations about kids or parts of the country just because of these data; if they did so, the results would be misapplied to justify poor performance, when they should be used to promote better performance."

## Reading Achievement of Southeastern Americans

When the panel turned to the question of Southeast performance, Mary Ann Baird of the Mississippi Department of Education set the stage. "We have to look at the financial situation of the Southeast," she said. "I think we'll readily admit that not just in the last 20 years but for the last 100 years the South has not economically been in a position to furnish all the things for the children that people would like to. They have not been able to pay teacher salaries like other areas of the country. So the teachers that they have trained in the Southeast have moved out to other regions of the country for larger salaries. Many of these schools until the last three to five years have not had district supervisors or curriculum coordinators; and courses of study which have been commonplace in other areas of the country are new to many of the schools in the South."

Harold Herber pointed out that improvement in reading programs is related not only to how much money you spend but to what you spend it on as well: "I have no hard data in this subjective evaluation, but I think that where money that's available is put into staff development rather than into materials and equipment, there is much more progress being made. What distressed me, back about the time of this national assessment, was that in various places in the South you could be shown closets full of unopened equipment that is worth literally hundreds of thousands of dollars.

In one school I saw a very large closet full of controlled readers, tachistoscopes--boxes were unopened, and each box represented between $250 and $300."

Another factor that may be influencing results in the Southeast is a lack of preschool experience. Mary Ann Baird pointed out that in many areas of the Southeast there are no public school kindergartens. Though Southeast first graders are the same age as those in other regions, they may not be as far along in social skills and reading preparation as children are elsewhere where public kindergartens are more prevalent.

## Male and Female Reading Achievement

When the panelists turned to the reading achievement levels of males and females, they were unanimous in the recommendation that more men become involved in primary education. They felt that the preponderance of female teachers in elementary schools was one cause of the disparity between the male and female performance levels. The also felt that the closing of this gap at the adult level is a reflection of male dominance in the working world. Commonly, women do not need to continue using their reading skills, while men do.

## Suggestions for Educators

What do the results of the first Reading assessment say to classroom teachers? Mary Ann Baird warned, "So many teachers or schools take it for granted that students just learn to read. This report is telling the teacher that she needs to teach these skills. For example, we just assume that anybody can follow directions, but the data indicate this isn't true. You can't assume that a child can read a graph or a map just because he knows how to read prose." Other panelists suggested that classroom teachers might want to use the NAEP exercises in their classrooms and compare their students' performance with the national figures. However, because of her experience with the Connecticut assessment, Olive Niles did not think this kind of "norming" was desirable; it could influence teachers to slacken their efforts if their students appeared to be performing above the national level.

To those panelists who urged that NAEP produce workbooks for classroom teachers based on the Reading data, Colin Dunkeld expressed some reservations: "It seems to me that we are each thinking of a particular group and not about what data the National Assessment program should provide. I look at it this way: If I were a teacher, a curriculum supervisor or a college teacher of teachers, I would feel that NAEP has given me a tremendous number

of things to think about. I don't think I want National Assessment to do much more; I think it has done enough. If NAEP wants to build a few more variables--particularly size of school and perhaps education of teacher--into the next assessment program, it would give me a lot more information. But I don't think I want National Assessment to design packages for me to use."

Several of the panelists commented favorably about the assessment's use of materials drawn from everyday experience. They felt that classroom teachers should be encouraged to take more of their materials from their students' environments. "What do teachers use as curriculum sources?" Colin Dunkeld asked. "They generally use publishers' texts, basal readers, spelling workbooks, something like that from the district. I don't think very many teachers are as innovative as they could be. They're not as resourceful in planning their own curriculum as they should be. But it seems to me that the NAEP items are quite different from the majority of items one encounters on the usual standardized test. It seems to me that there is a great wealth of things here that a teacher could use as suggestions for making up his or her own work, appropriate to his or her own children at their present level of development."

David Yarington pointed out that the assessment did not gather much information about attitudes toward reading. "I think you should make it very clear that you did not gather information on attitudes," he said. "It may be that more than 50% of the variance in learning to read is due to affective, rather than cognitive variables." Olive Niles stressed the need for information about teachers' attitudes as well as students'; and Harold Herber underscored the importance of positive attitudes among both groups: "In the studies we have done in inner city schools, where we see achievement change, we also see significant change in both teacher and student attitude. If we don't get those two, we rarely see student change in achievement. You don't find change in student achievement unless you find change in both teacher attitude and student attitude."

## Concluding Remarks for Teacher Trainers and Administrators

In the course of this two day discussion, the participants touched on a wide range of issues and ideas too numerous to summarize. Three quotations must suffice to represent their discussion of the implications of the Reading results for school administrators and teacher trainers.

Harold Herber: "I think we could suggest to school administrators that they and their staffs take a look at the items in the National Assessment and ask themselves: 'Are these tasks what

we are expecting of our students? If not, then what are the tasks that we really are expecting?' If so, then maybe they should lift out of the National Assessment materials those items that reflect their expectations about their kids at the different levels and then use them as a criterion referenced test for their own purposes."

Olive Niles: "I think the results say more to teacher trainers and state department certification people, particularly the teacher trainers, than they do to present classroom teachers. There's not much that the women who are now teaching kindergarten and first grade can do about the male-female difference, for example. But colleges, I think, could do a great deal to encourage many more men to go into primary education. I think there are results here that say things to teacher trainers--for example, the inferior results from the Blacks. In general, the inner city jobs are looked upon as the least desirable by many candidates; with the teacher shortage as it is today, however, often the only jobs that are open are in the inner city schools. I think we have too many beginning teachers and reluctant teachers in inner city schools and this is part of the reason why the inner city schools are doing less well, the Blacks are doing less well, and so on."

David Yarington: "I'm a teacher educator and these data tell me to emphasize the following things for teacher education: I would emphasize the importance of individual differences as they apply to different ethnic groups. I think we should spend a lot of time in race relations, in making prospective teachers aware of their attitudes and their effects upon students. I also think we should spend a lot of time on human relations so teachers can become more aware of themselves as human beings, so that they can foster a better understanding among kids, so that kids can have a more positive self-image and so that kids can relate to others in a better way, therefore providing the positive affective things that I think influence learning to read. I think we should make an effort to recruit men into elementary education. We should teach teachers to make differences with kids, and the way you do that, I think, is by giving prospective teachers experiences with kids in classrooms. We should try to develop some competencies with kids in two areas: One, in teaching beginning reading skills, in fracturing reading down into its basic components. That is, we should teach teachers how to do direct teaching, one on one, of the basic skills--word analysis skills and word recognition skills. And two, we should teach comprehension and the kinds of things that the National Assessment tests in the larger setting of the whole reading process."

## APPENDIX A

Median Differences Between Group and National Performance on All Exercises at Each Age Level

| Variables and Groups | Age Level | | | |
|---|---|---|---|---|
| | 9 (158 Exercises) | 13 (249 Exercises) | 17 (206 Exercises) | Adult (97 Exercises) |
| Region | | | | |
| Southeast | -5.9* | -4.8* | -4.9* | -8.1* |
| West | -0.9 | -0.2 | -0.1 | 2.3 |
| Central | 3.0 | 2.3 | 1.9 | 1.3 |
| Northeast | 2.2 | 2.2 | 1.6 | 1.0 |
| Sex | | | | |
| Male | -2.3* | -2.5* | -2.0* | 0.3 |
| Female | 2.3* | 2.4* | 2.0* | -0.2 |
| Color | | | | |
| Black | -16.3* | -15.5* | -16.3* | -18.6* |
| White | 2.8* | 2.8* | 2.3* | 2.5* |
| Parental education | | | | |
| No high school | -9.1* | -11.9* | -11.1* | -6.6* |
| Some high school | -4.8 | -4.4 | -5.9* | -0.4 |
| Graduated high school | 0.7 | 0.6 | -0.3 | 2.8 |
| Post high school | 6.8* | 6.8* | 5.7* | 8.0* |
| Size and type of community | | | | |
| Extreme inner city | -14.3* | -8.0* | -7.7* | |
| Extreme rural | -4.3 | -3.9 | -2.6 | |
| Small city | -0.6 | -0.5 | -1.3 | |
| Medium city | 0.1 | 0.4 | 0.8 | |
| Rest of big city | 1.4 | -1.2 | 1.4 | |
| Suburban fringe | 2.2 | 2.3 | 1.2 | |
| Extreme affluent suburb | 8.4* | 5.7* | 5.7* | |
| Size of community | | | | |
| Big city | | | | -3.6 |
| Small place | | | | 0.6 |
| Medium city | | | | 0.9 |
| Urban fringe | | | | 1.9 |

*These figures represent significant differences from the national level of performance.

## APPENDIX B

Number of Exercises in Each Theme at Each Age Level

| Age | Theme | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| 9 | 13 | 19 | 7 | 17 | 24 | 21 | 33 | 24 | 158 |
| 13 | 19 | 50 | 22 | 26 | 37 | 20 | 45 | 30 | 249 |
| 17 | 14 | 41 | 18 | 22 | 35 | 17 | 38 | 21 | 206 |
| Adult | 8 | 26 | 4 | 7 | 20 | 8 | 12 | 12 | 5 |
| Total | 54* | 136 | 51 | 72 | 116 | 66 | 128 | 87 | 710 |

*Because some exercises were administered at more than one age level, these vertical totals do not indicate the total numbers of different exercises in any theme.

## APPENDIX C

The following is a list of reports pertaining to the Reading assessment for the year 1970-71:

| Report Number | Title |
|---|---|
| 02-GIY | *General Information Yearbook* |
| 02-R-20 | *Released Exercises* |
| 02-R-01 | *Understanding Words and Word Relationships* |
| 02-R-02 | *Graphic Materials* |
| 02-R-03 | *Written Directions* |
| 02-R-04 | *Reference Materials* |
| 02-R-05 | *Gleaning Significant Facts from Passages* |
| 02-R-06 | *Main Ideas and Organization* |
| 02-R-07 | *Drawing Inferences* |
| 02-R-08 | *Critical Reading* |
| 02-R-09 | *Reading Rate and Comprehension* |
| 02-R-00 | *Reading Summary* (Spring 1974) |

Copies of these reports are available from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Education Commission of the States

NATIONAL ASSESSMENT
OF EDUCATIONAL PROGRESS

# READING

REPORT 02-R-30
1970-71 ASSESSMENT

A Project of The Education Commission of the States